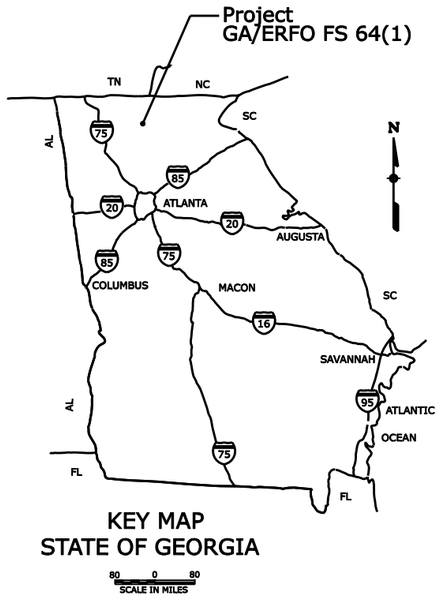
REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
8	GA	GA/ERFO FS 64(1)	A1	37



KEY MAP
STATE OF GEORGIA

U. S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE - SOUTHERN REGION
AND
U. S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

CHATTAHOOCHEE-OCONEE NATIONAL FOREST

PLANS FOR PROPOSED PROJECT

GA/ERFO FS 64(1)

DISASTER GA2004-1-FS

INDEX TO SHEETS

DESCRIPTION OF PROJECT

IMPROVEMENT: Roadway reconstruction, gravel surface, geosynthetic reinforcement, and drainage

PROJECT LENGTH: 0.15 Miles

ROAD: 6" aggregate surface

	WIDTH	TYPE
SURFACE:	Varies 14' to 17'	Gravel
BASE:		

BRIDGE: N/A

DESIGN DESIGNATION:

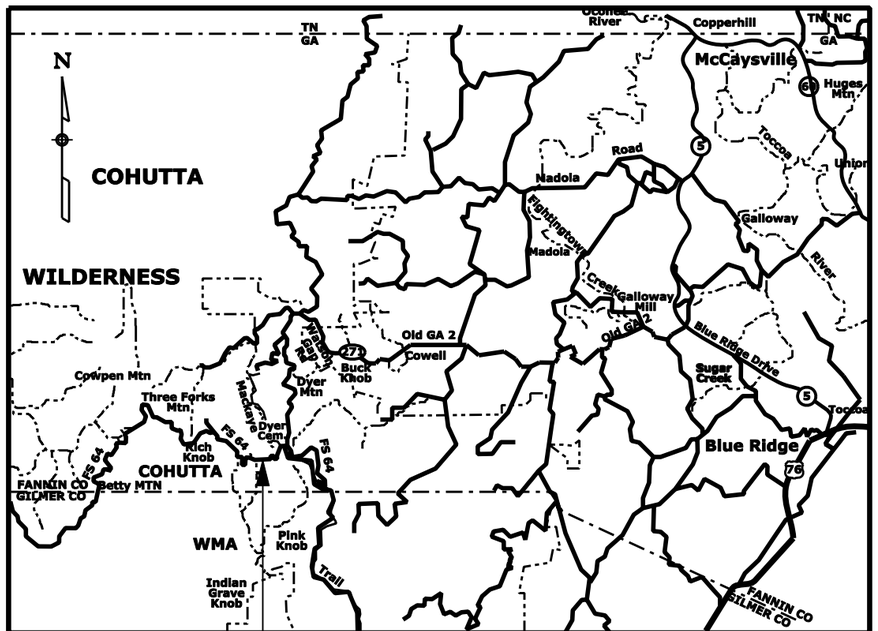
ADT (2008)	30
ADT (2028)	40
DHV	N/A
D	50/50
%Truck	0%
V (MPH)	20
C/A	None
e(max)	None

SPECIFICATIONS:

"Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects", FP-03 U.S. Customary Units

PROJECT MANAGER	LEAD DESIGNER
Arvind Patel	Sidney Taylor

FANNIN COUNTY
GEORGIA



PROJECT GA/ERFO FS 64(1)

PLANS PREPARED BY

U.S. Department of Transportation
Federal Highway Administration

EASTERN FEDERAL LANDS HIGHWAY DIVISION
STERLING, VIRGINIA
June, 2008

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REG	STATE	PROJECT	SHEET NO.
8	GA	GA/ERFO FS 64(1)	A2

Abutment	Abut.
Aggregate	aggr.
Ahead	AH
Alternate	alt.
Average daily traffic	ADT
Back	BK
Balance point	BP
Bearing	brg.
Begining	beg.
Bench mark	BM
Centerline	
Center to center	cc, c-c or c. to c.
Centers	ctrs.
Clear	clr.
Column	col.
Connection	conn.
Construction joint	Constr. jt.
Continuous	cont.
Corrugated metal pipe	CMP
Culvert	culv.
Curve centeral angle (spiral curve transitions)	Δ_c
Curve total angle (curve delta or deflection)	Δ
Design hourly volume	DHV
Design speed	V
Diagonal	diag.
Diameter	D, dia., or
Diaphragm	diaph.
Distance	dist.
Drawing(s)	dwg(s), or drwg(s)
Drop Inlet	DI
East	E
Edge of pavement	EP or EOP
Elevation	elev.
Elevation with number	El. 94.161 [El. 94.16]
Embankment	emb.
End section	ES
Equation	EQ or eq.
Excavation	exc.
Expansion joint	exp. jt.
Finish	fin.
Flange	flg.
Footing	ftg.
Galvanized	galv.
Gage(gauge)	ga.
Headwall	hdwl.
Hexagon	hex.
High water	HW
Inside diameter	ID
Joint	jt.
Lamination	lam.
Latitude	lat.
Left	lt., Lt. or LT
Length of curve(simple curve)	L
Length of curve (spiral curve transision)	Lc
Length of spiral	Ls
Longitudinal(longitude)	long.
Low water	LW
Mainline	M.L.
Material	matl.
Maximum	max.
Mile[Kilometer] post	M.P[K.P.]
Minimum	min.
Monument	mon.
Mechanically stabilized embankment	MSE
Original groung	OG
Out to out	o. to o.
Outside diameter	OD
On centers	o. c.
Normal crown	NC or NCR
North	N
Pavement	pvmt.
Plate	pl.
Point of compound curve	PCC
Point of curve	PC
Point of curve to spiral	PCS or CS
Point of intersection	PI
Point of spiral to curve	PSC or SC
Point of spiral to reverse spiral	SRS
Point of spiral to tangent	PST or ST
Point of tangent	PT
Point of tangent to spiral	PS or TS
Point on curve	POC
Point on spiral	POS
Point on tangent	POT
Radius	R
Range	R.
Reinforcement (reinforced)	reinf.
Required	reqd.
Right	Rt., rt.or RT
Right-of-way	R/W
Roadway	Rdwy.
Route	Rte.
Section	Sec.
South	S
Spacing, spaces or spaced	spa.
Spiral central angle	s
Standard	std.
Station	Sta.
Stiffener	stiff.
Stringer	stgr.
Structure	struc.
Superelevation rate	e
Symmetrical	sym.
Tangent distance (tangent length)	T
Tangent distance (spiral curve transision)	Ts
Temporary benchmark	TBM
Temporary construction easement	TCE
Thread	thd.
Township	T.
Typical	typ.
Vehicle per hour	vph
Vertical point of intersection	VPI
West	W

NATIONAL BOUNDARY
STATE BOUNDARY
COUNTY BOUNDARY
CITY BOUNDARY
TOWNSHIP or RANGE LINE
SECTION LINE
¼ SECTION LINE
1/16 SECTION LINE
NATIONAL PARK or FOREST BOUNDARY
PROPERTY LINE — P/L
TRAVERSE POINT (Horizontal & Vertical) Top of Triangle Points North — T-45 2,645.9
TRAVERSE POINT (Horizontal) — T-3
BRASS CAP
STEEL PIN
HUB & TACK
SPOT ELEVATION — × 99.9
COORDINATE GRID TICK

	EXISTING	PROPOSED
RIGHT-OF-WAY LINE	R/W	R/W
RIGHT-OF-WAY LINE with MONUMENT	R/W	R/W
	FOUND	PROJECTED
SECTION CORNER	36 31 1 6	36 31 1 6
¼ SECTION CORNER	15 22	15 22
1/16 SECTION		
PROPERTY CORNER		No Symbol
PARCEL NUMBER	No Symbol	400
EASEMENT (Permanent - Construction)	P/E	C/E
ROUTE NUMBERS	26 INTERSTATE; 25 U.S.	694 STATE

SLOPE STAKE — TOP OF CUT; TOE OF FILL; TRANSITION
ROADWAY, EXISTING
RAILROAD — SINGLE TRACK; MULTIPLE TRACK
TRAIL
INTERMITTENT DRAINAGE/ SMALL CREEK
SPRING
LARGE CREEK/RIVER
LAKE, POND or RESERVOIR; MARSHLAND

AREA PATTERN
PAVEMENT REMOVAL/ROADWAY OBLITERATION
FULL DEPTH PAVEMENT
SIDEWALK ASPHALT/CONCRETE
MILL AND OVERLAY
OVERLAY

SILT FENCE — SF
DIVERSION BERM — DB
DIVERSION CHANNEL
CHECK DAM
RIPRAP/CULVERT RIPRAP
BORING LOCATION — B-1
TEST PIT — TP-1
NORTH ARROW — N
MATERIAL SOURCE

		EXISTING	PROPOSED
FENCE		X X	XX XX
GATE with FENCE		X X	XX XX
CATTLEGUARD			
GUARDRAIL			
MEDIAN & SIDE (CONCRETE) BARRIER			
SIGNS	POST MOUNTED		
	PORTABLE	No Symbol	
RETAINING WALL			wall face
OVERHEAD(POWER POLE) UTILITIES P=Electrical for transmission line E=Electrical for distribution line T=Telephone, E&T=Joint Electrical and Telephone FO=Fibre optics		P	P
SUPPORT POLE with ANCHOR			
TELEPHONE BOOTH or PEDESTAL		TB or TP	TB or TP
STREET LIGHT		or	or
UNDERGROUND UTILITIES G=gas, O=oil, P=power, SA=sanitary sewer, SS=storm sewer, T=telephone, W=water E=electrical, FO=fibre optics		W	W
BRIDGE			
PIPE CULVERT (arrow shows flow)			
PIPE CULVERT with END SECTION			
PIPE CULVERT with HEADWALL			
CULVERT with DROP INLET			
BOX CULVERT			
UNDERDRAIN		UD	UD
BUILDING			
TREELINE; TREE			

PROJECT SPECIFIC SYMBOLS AND ABBREVIATIONS:-

INLET PROTECTION	IP

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
EASTERN FEDERAL LANDS HIGHWAY DIVISION
STERLING, VIRGINIA

CHATTAHOOCHEE - OCONEE NATIONAL FOREST

SYMBOLS AND ABBREVIATIONS

REG	STATE	PROJECT	SHEET NO.
8	GA	GA/ERFO FS 64(1)	A3

Notes:

1. Install "Road Closed To Thru Traffic" sign no. R11-4 south of the entrance to Dyer Cemetery and install "Road Closed 1 Mile Ahead" sign no. R11-3 as shown along FS 64C and FS 64 intersections and as directed by the CO.

2. Install temporary metal gates after the entrance to Dyer Cemetery and just east of the Campgrounds as shown, and as directed by the CO. Mount "ROAD CLOSED" sign no. R11-2 on both metal gates (see Detail E619-06). Use the gates, for the duration of the construction to close the road to the public. Remove the metal gates after the construction operation has been completed. Do not block the entrances to Dyer Cemetery or the campgrounds.

R11-3

ROAD CLOSED
IMILE AHEAD

60 X 30

R11-4

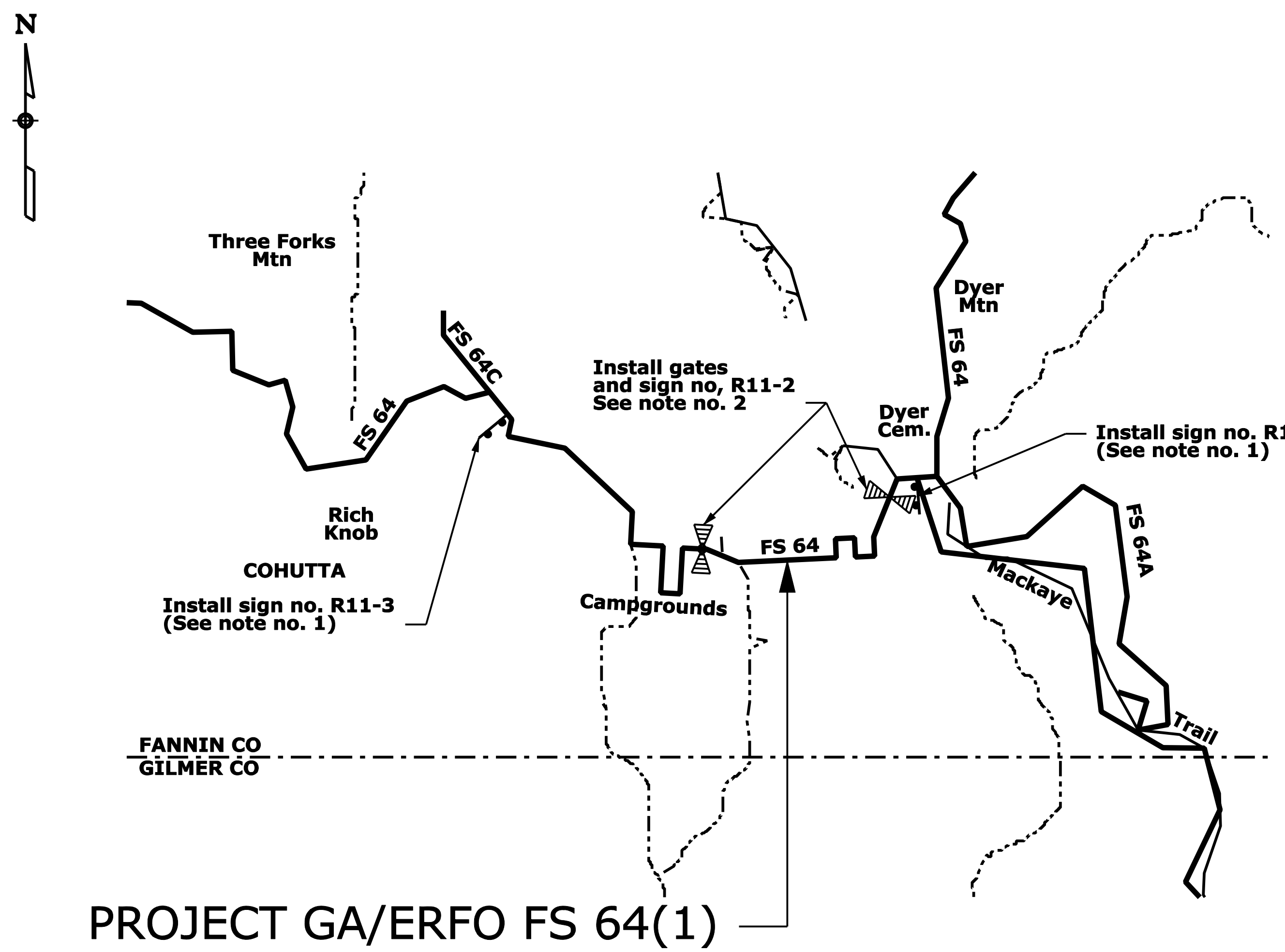
ROAD CLOSED
TO
THRU TRAFFIC

60 X 30

R11-2

ROAD
CLOSED

48 X 30



0 ½ 1
SCALE IN MILES

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FEDERAL HIGHWAY ADMINISTRATION
EASTERN FEDERAL LANDS HIGHWAY DIVISION
STERLING, VIRGINIA

CHATTAHOOCHEE - OCONEE NATIONAL FOREST

VICINITY MAP AND ADVANCE WARNING SIGN PLAN

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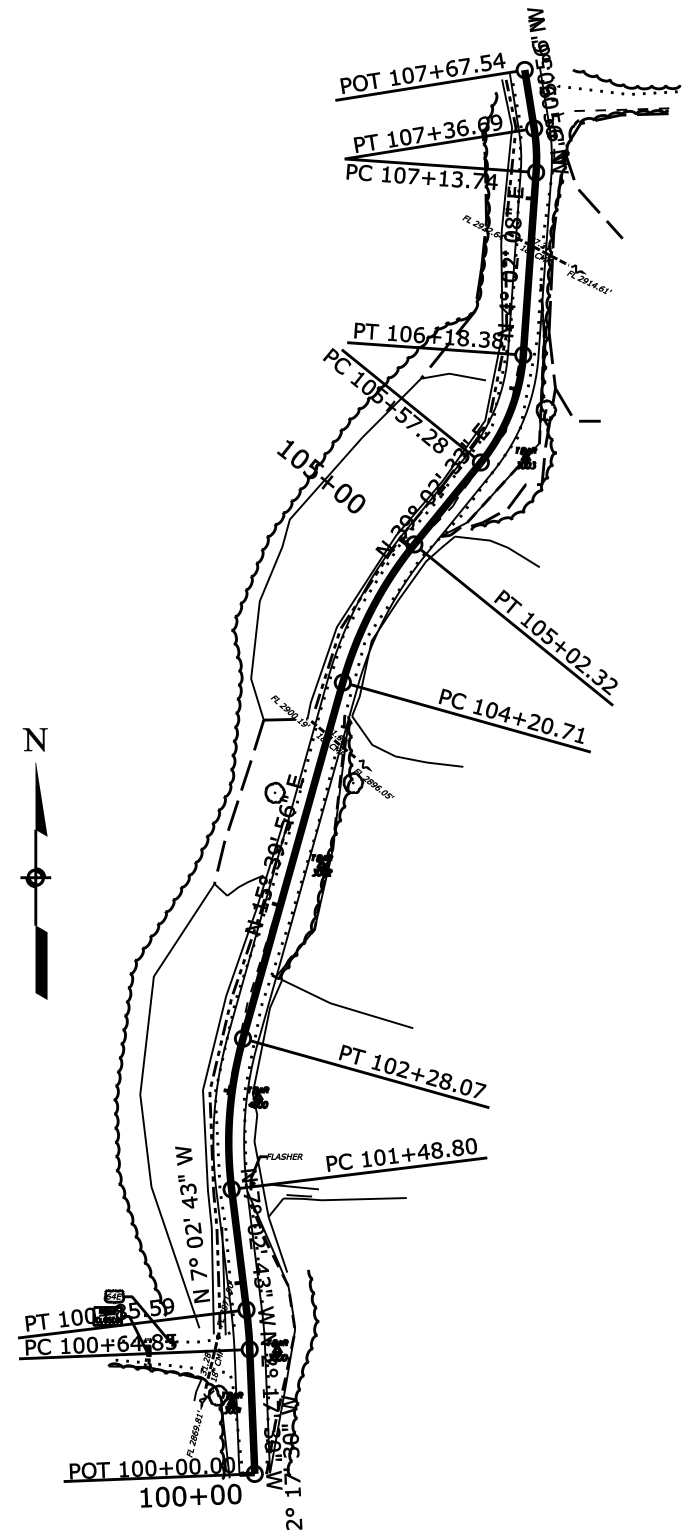
REG	STATE	PROJECT	SHEET NO.
8	GA	GA/ERFO FS 64(1)	A4



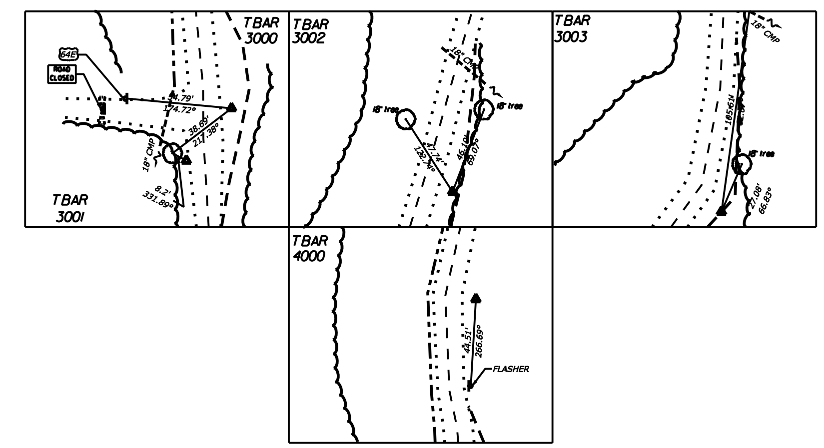
Project Coordinate System

Coordinate System : US State Plane 1983(GRID)
Zone : Georgia West 1002
Datum : NAD 1983 (Conus)
Ellipsoid Name : Geodetic Ref System 1980
Geoid Model : GEOID03 (Conus)
Project : FS-Ga64(1)erfo

PROJECT CONTROL

NAME	NORTHING	EASTING	ELEV.	TYPE
3000	1772706.331	2192403.395	2872.871	TBAR
3001	1772679.016	2192379.824	2871.730	TBAR
3002	1772959.007	2192426.550	2894.614	TBAR
3003	1773171.150	2192532.830	2918.215	TBAR
4000	1772838.056	2192393.356	2882.361	TBAR

Survey Control Reference



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FEDERAL HIGHWAY ADMINISTRATION
EASTERN FEDERAL LANDS HIGHWAY DIVISION
STERLING, VIRGINIA

CHATTAHOOCHEE - OCONEE NATIONAL FOREST

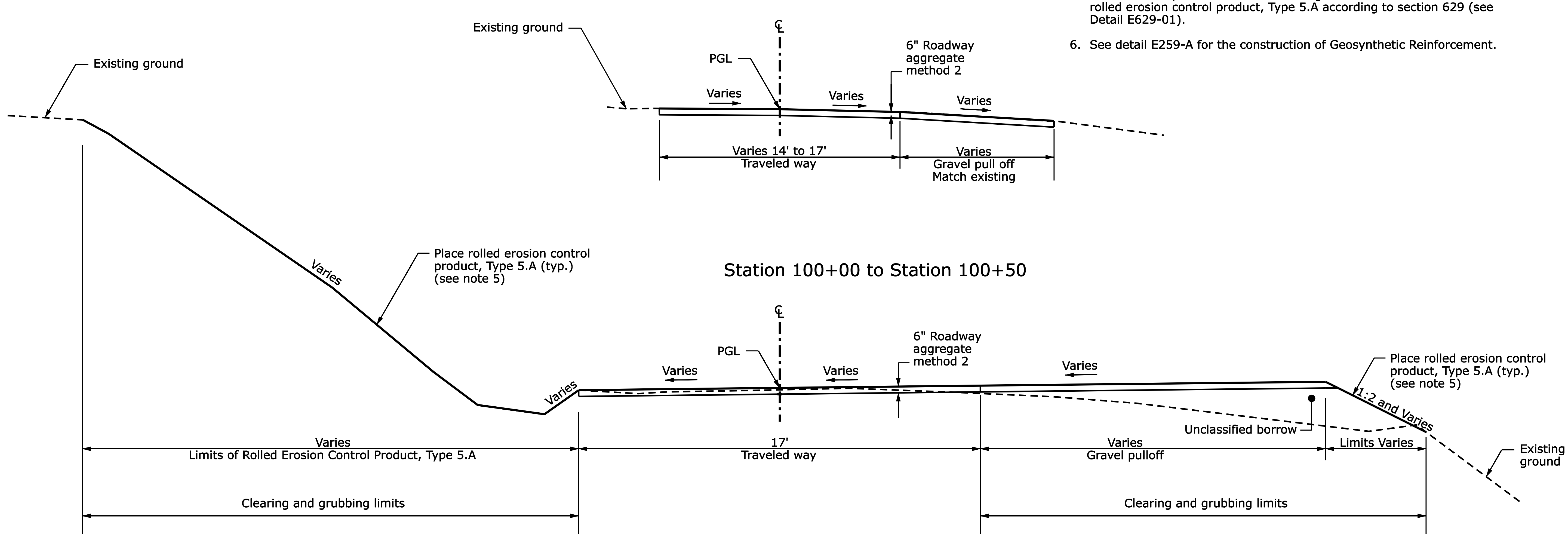
SURVEY CONTROL

0 50 100
SCALE IN FEET

REG	STATE	PROJECT	SHEET NO.
8	GA	GA/ERFO FS 64(1)	B1

Note:

1. The gradient and width of roadway ditches and the excavation and embankment slope ratio may be adjusted by the CO to assure adequate drainage and stability.
2. See cross sections for cut and fill ratios.
3. Round all earth slopes as directed by the CO.
4. Construction limits will be staked by the contractor and approved by the CO. Limits may be adjusted to preserve significant vegetation. No clearing will be allowed until construction limits are staked and approved. Maintain construction limit stakes for the duration of the contract.
5. Furnish and place topsoil, 3" depth, seed, and mulch using hydraulic method on slopes and ditches according to sections 624 and 625. Place rolled erosion control product, Type 5.A according to section 629 (see Detail E629-01).
6. See detail E259-A for the construction of Geosynthetic Reinforcement.



Station 100+50 to Station 101+25

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FEDERAL HIGHWAY ADMINISTRATION
EASTERN FEDERAL LANDS HIGHWAY DIVISION
STERLING, VIRGINIA

CHATTAHOOCHEE - OCONEE NATIONAL FOREST

TYPICAL SECTIONS

REG	STATE	PROJECT	SHEET NO.
8	GA	GA/ERFO FS 64(1)	B2

Note:

1. The gradient and width of roadway ditches and the excavation and embankment slope ratio may be adjusted by the CO to assure adequate drainage and stability.
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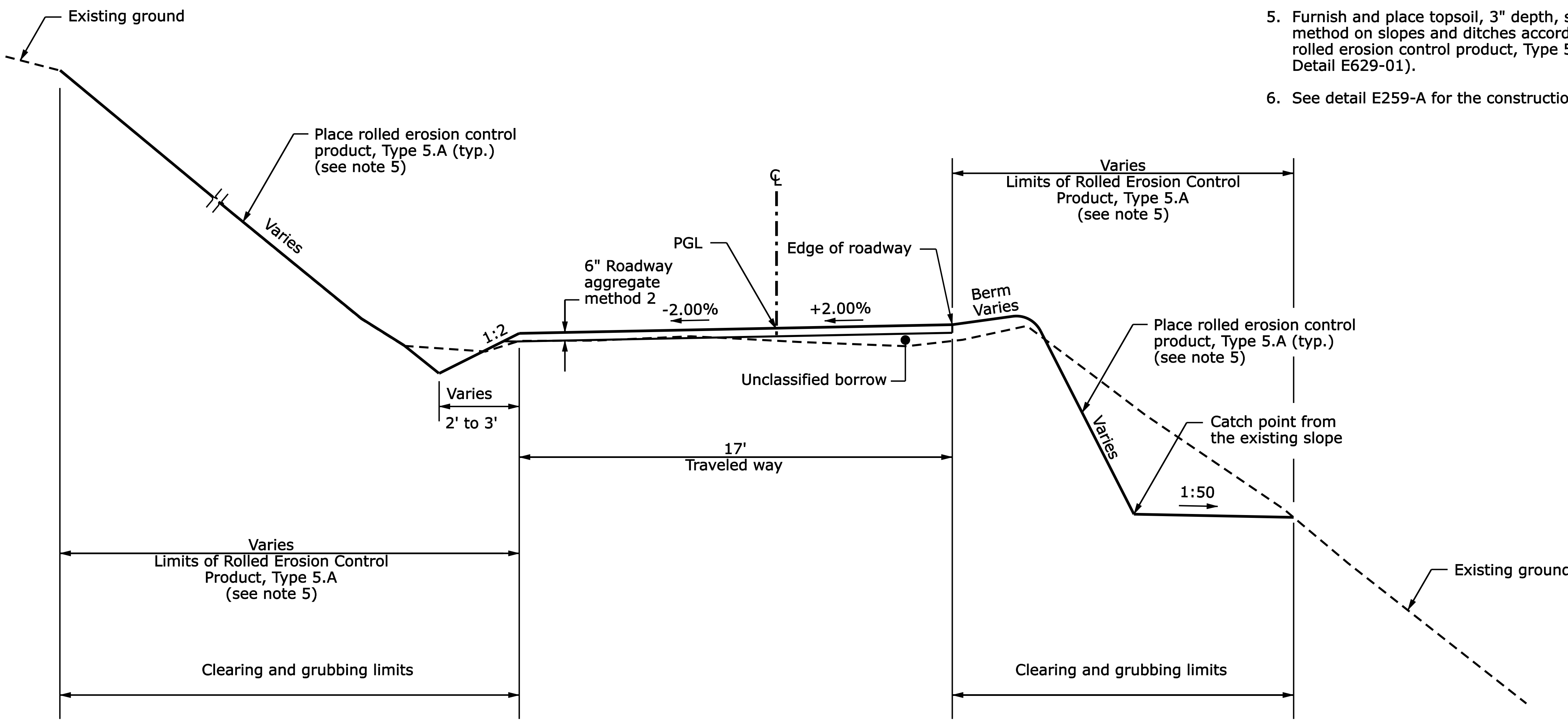

Slide Repair Section

Station 101+25 to Station 102+75
Station 103+75 to Station 105+25
(See Detail E259A, sheet S4)

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FEDERAL HIGHWAY ADMINISTRATION
EASTERN FEDERAL LANDS HIGHWAY DIVISION
STERLING, VIRGINIA

CHATTAHOOCHEE - OCONEE NATIONAL FOREST

TYPICAL SECTIONS

REG	STATE	PROJECT	SHEET NO.
8	GA	GA/ERFO FS 64(1)	B3

Note:

1. The gradient and width of roadway ditches and the excavation and embankment slope ratio may be adjusted by the CO to assure adequate drainage and stability.
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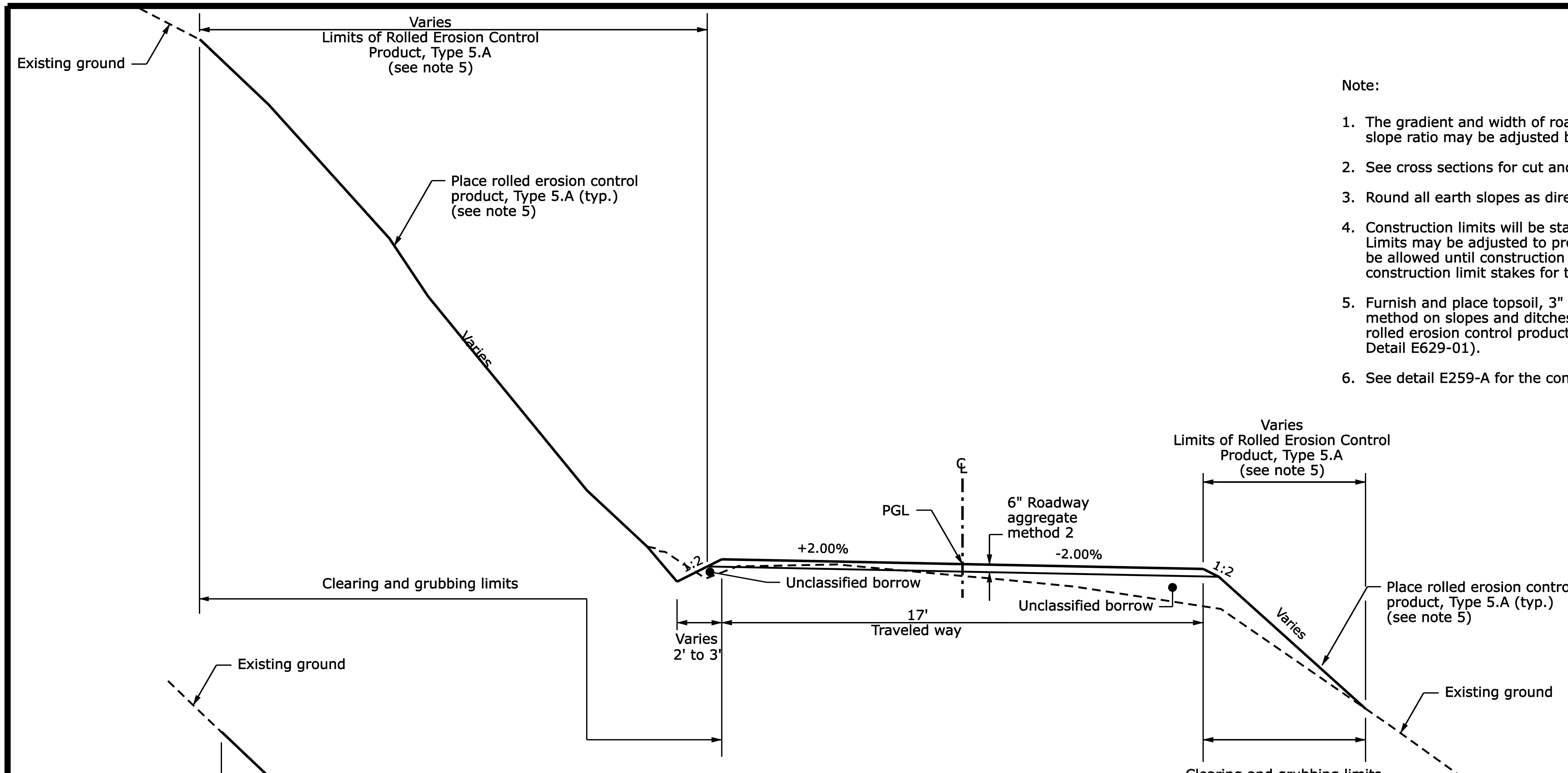
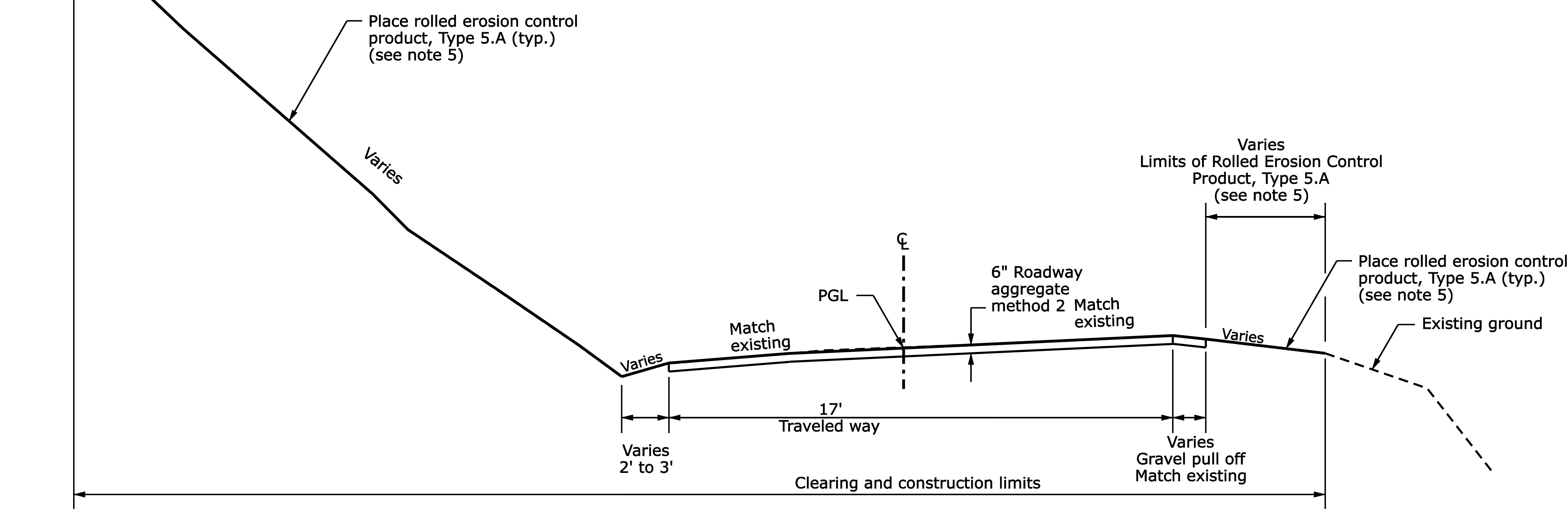
6. See detail E259-A for the construction of Geosynthetic Reinforcement.



Station 102+75 to Station 103+75



Station 105+25 to Station 105+75

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FEDERAL HIGHWAY ADMINISTRATION
EASTERN FEDERAL LANDS HIGHWAY DIVISION
STERLING, VIRGINIA

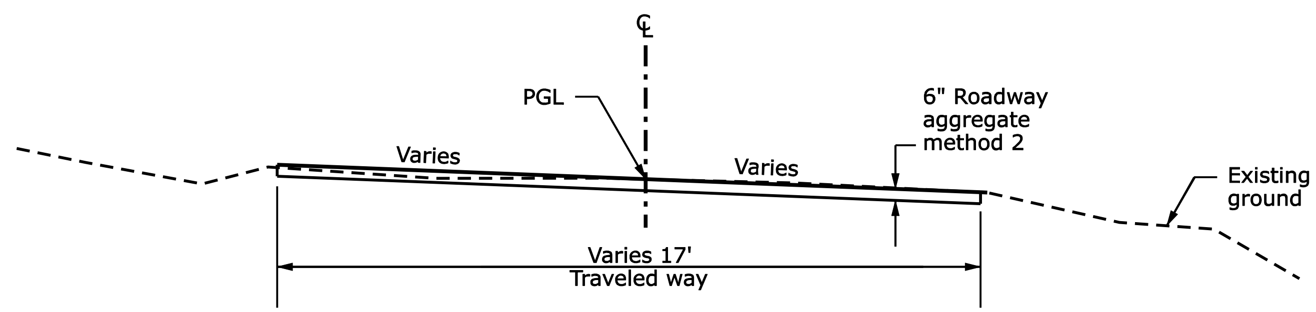
CHATTAHOOCHEE - OCONEE NATIONAL FOREST

TYPICAL SECTIONS

REG	STATE	PROJECT	SHEET NO.
8	GA	GA/ERFO FS 64(1)	B4

Note:

1. See cross sections for cut and fill ratios.
2. Construction limits will be staked by the contractor and approved by the CO. Limits may be adjusted to preserve significant vegetation. No clearing will be allowed until construction limits are staked and approved. Maintain construction limit stakes for the duration of the contract.



Station 105+75 to Station 107+67.54

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FEDERAL HIGHWAY ADMINISTRATION
EASTERN FEDERAL LANDS HIGHWAY DIVISION
STERLING, VIRGINIA

CHATTAHOOCHEE - OCONEE NATIONAL FOREST

TYPICAL SECTIONS

REG	STATE	PROJECT	SHEET NO.
8	GA	GA/ERFO FS 64(1)	C1

					ESTIMATED QUANTITIES	
	PLAN SHEET SECTION -------->>					
ITEM	DESCRIPTION	UNIT			PLAN	BID SCHEDULE
15101-0000	MOBILIZATION	LPSM			ALL	ALL
15201-0000	CONSTRUCTION SURVEY AND STAKING	LPSM			ALL	ALL
15401-0000	CONTRACTOR TESTING	LPSM			ALL	ALL
15705-0100	SOIL EROSION CONTROL, SILT FENCE	LNFT	1550		1550	1,550
15706-1200	SOIL EROSION CONTROL, INLET PROTECTION TYPE B	EACH	2		2	2
20103-0000	CLEARING AND GRUBBING	SOYD	2600		2600	2,600
20301-1900	REMOVAL OF PIPE CULVERT	EACH	3		3	3
20401-0000	ROADWAY EXCAVATION	CUYD	3400		3400	3,400
20403-0000	UNCLASSIFIED BORROW	CUYD	3150		3150	3,150
20701-1100	EARTHWORK GEOTEXTILE, TYPE III-B	SOYD	1000		1000	1,000
25101-3000	PLACED RIPRAP, CLASS 3	CUYD	9		9	9
30802-2000	ROADWAY AGGREGATE, METHOD 2	TON	700		700	700
60103-0100	CONCRETE, HEADWALL FOR 18-INCH PIPE CULVERT	EACH	2		2	2
60201-0600	18-INCH PIPE CULVERT	LNFT	70		70	70
60210-0600	END SECTION FOR 18-INCH PIPE CULVERT	EACH	2		2	2
60403-1400	INLET, TYPE 5B	EACH	2		2	2
60501-0000	STANDARD UNDERDRAIN SYSTEM	LNFT	300		300	300
61902-2100	GATE, METAL, 30 FEET WIDTH	EACH	2		2	2
62401-0200	FURNISHING AND PLACING TOPSOIL, 3-INCH DEPTH	SOYD	2600		2600	2,600
62511-2000	SEEDING, HYDRAULIC METHOD	SOYD	2600		2600	2,600
62516-2000	MULCHING, HYDRAULIC METHOD	SOYD	2600		2600	2,600
62901-1200	ROLLED EROSION CONTROL PRODUCT, TYPE 5.A	SOYD	2600		2600	2,600
63502-1600	TEMPORARY TRAFFIC CONTROL, WARNING LIGHT TYPE B	EACH	6		6	6
63504-1000	TEMPORARY TRAFFIC CONTROL, CONSTRUCTION SIGN	SQFT	45		45	45
63708-0000	CELLULAR PHONE SERVICE	MO	3		3	3

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U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
EASTERN FEDERAL LANDS HIGHWAY DIVISION
STERLING, VIRGINIA

CHATTAHOOCHEE - OCONEE NATIONAL FOREST

TABULATION OF QUANTITIES

REG	STATE	PROJECT	SHEET NO.
8	GA	GA/ERFO FS 64(1)	C2

Text No.	Sign Text	LOCATION		PANEL SIZE						TEXT SIZE				Color Combination	Quantity	Total Area (sq ft)	Remarks
		Station	Side	Width (in.)	Height (in.)	Area (sq ft)	Corner Radii (in.)	Border Width (in.)	Margin Width (in.)	Numbers (in.)	Upper Case (in.)	Lower Case (in.)	Series				
R11-2	ROAD CLOSED			48	30	10	←			See	Note 1		→	Black on White	2	20	Mount on metal gate Mount 2 Type B warning lights on gate
R11-3	ROAD CLOSED IMILE AHEAD			60	30	12.5	←			See	Note 1		→	Black on White	1	12.5	Mount 2 Type B warning light on sign
R11-4	ROAD CLOSED TO THRU TRAFFIC			60	30	12.5	←			See	Note 1		→	Black on White	1	12.5	Mount 2 Type B warning light on sign
														TOTAL	4	45	

Note:

1. Construct and erect all signs in accordance with the "Manual on Uniform Traffic Control Devices" (MUTCD), latest edition.
2. For location of signs see Vicinity Map and Advance Warning Sign Plan and as directed by the CO.

SHEET 1 OF 1

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
EASTERN FEDERAL LANDS HIGHWAY DIVISION
STERLING, VIRGINIA

CHATTAHOOCHEE - OCONEE NATIONAL FOREST

CONSTRUCTION SIGN SCHEDULE

REG	STATE	PROJECT	SHEET NO.
8	GA	GA/ERFO FS 64(1)	C3

DRAINAGE SUMMARY

STATION	MAX. COVER Feet	UNDERDRAIN 4 Inch (No pay)	UNDERDRAIN 4 Inch PVC (No pay)	CULVERT PIPE LENGTH (Feet)						Headwall For 18 Inch Culvert	End Section For 18 Inch Culvert	TERMINI Lt.	TERMINI Rt.		RIPRAP CLASS 3 yd^3	RIPRAP CLASS 2 yd^3	REMARKS
					18 Inch												
100+60.11					26						2				3		Install end section at the inlet and outlet Place riprap at the outfall, Class 3
103+67					24					1		IN-5B	HW		3		Install headwall at the outlet Place riprap at the outfall, Class 3
106+75					20					1		IN-5B	HW		3		Install headwall at the outlet Place riprap at the outfall, Class 3
101+25.00		35														1	Underdrain outlet pipe
101+75.00		25														1	Underdrain outlet pipe
102+25		25														1	Underdrain outlet pipe
102+75		25														1	Underdrain outlet pipe
103+75		25														1	Underdrain outlet pipe
104+25		20														1	Underdrain outlet pipe
104+75		20														1	Underdrain outlet pipe
105+25		30														1	Underdrain outlet pipe
101+25 to 102+75			150														Underdrain collector pipe for geosynthetic reinforcement
103+75 to 105+25			150														Underdrain collector pipe for geosynthetic reinforcement
TOTALS		205	300		70					2	2				9	8	

NOTES:

1. Locations, maximum cover, length and types of termini are approximations and are subject to adjustment to field conditions.
2. For inlet and end section details, see standard 602-4 and detail E604-4.

IN = Inlet HW = Headwall

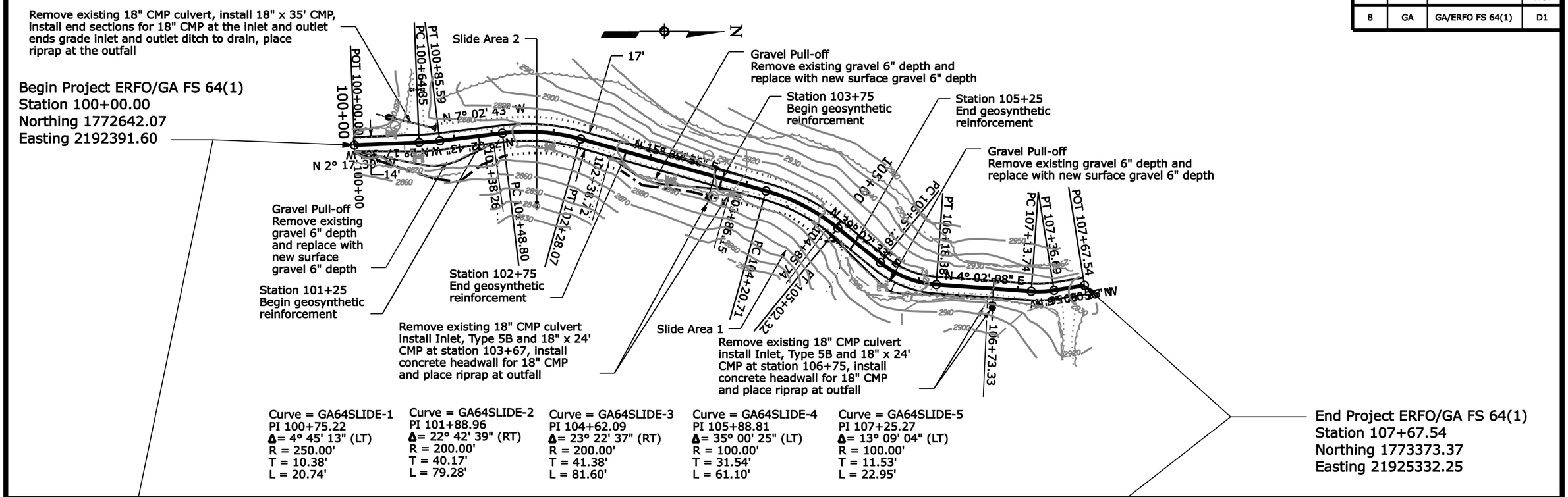
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
EASTERN FEDERAL LANDS HIGHWAY DIVISION
STERLING, VIRGINIA

CHATTAHOOCHEE - OCONEE NATIONAL FOREST

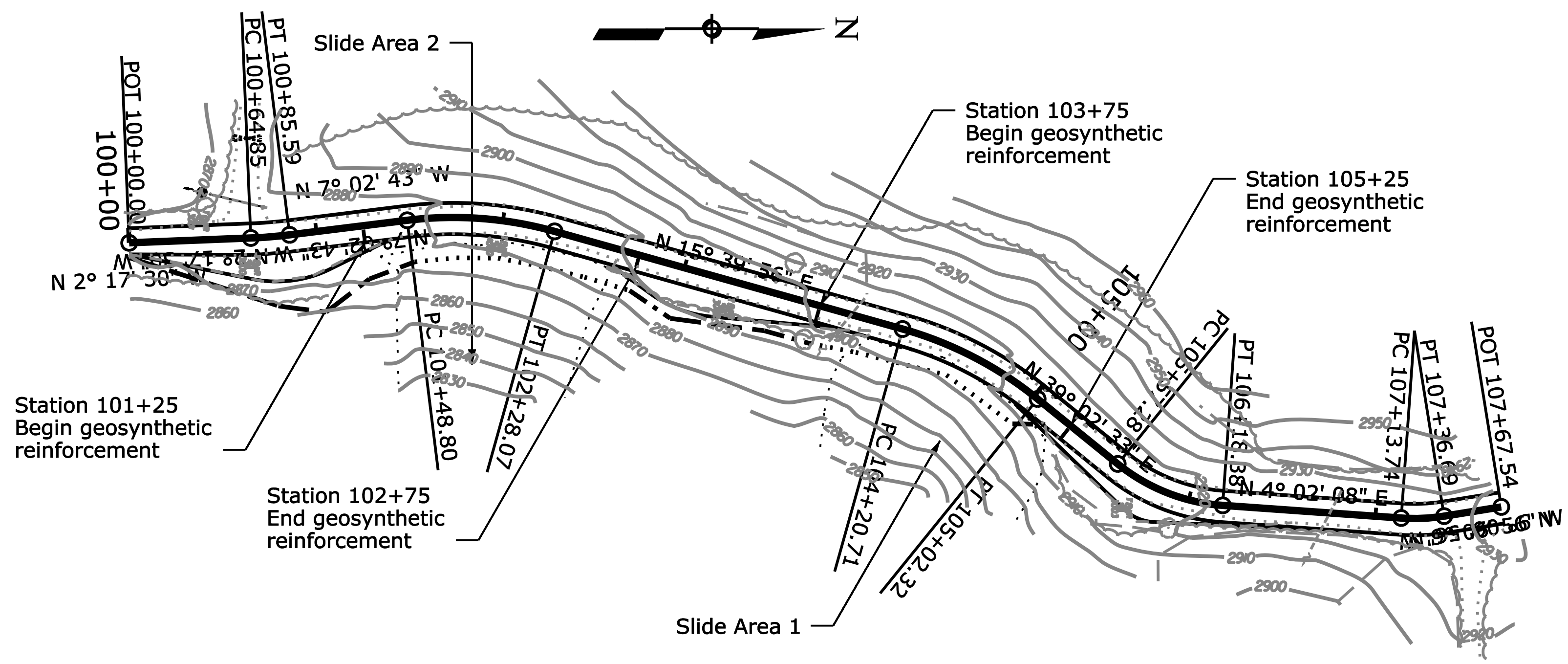
DRAINAGE SUMMARY

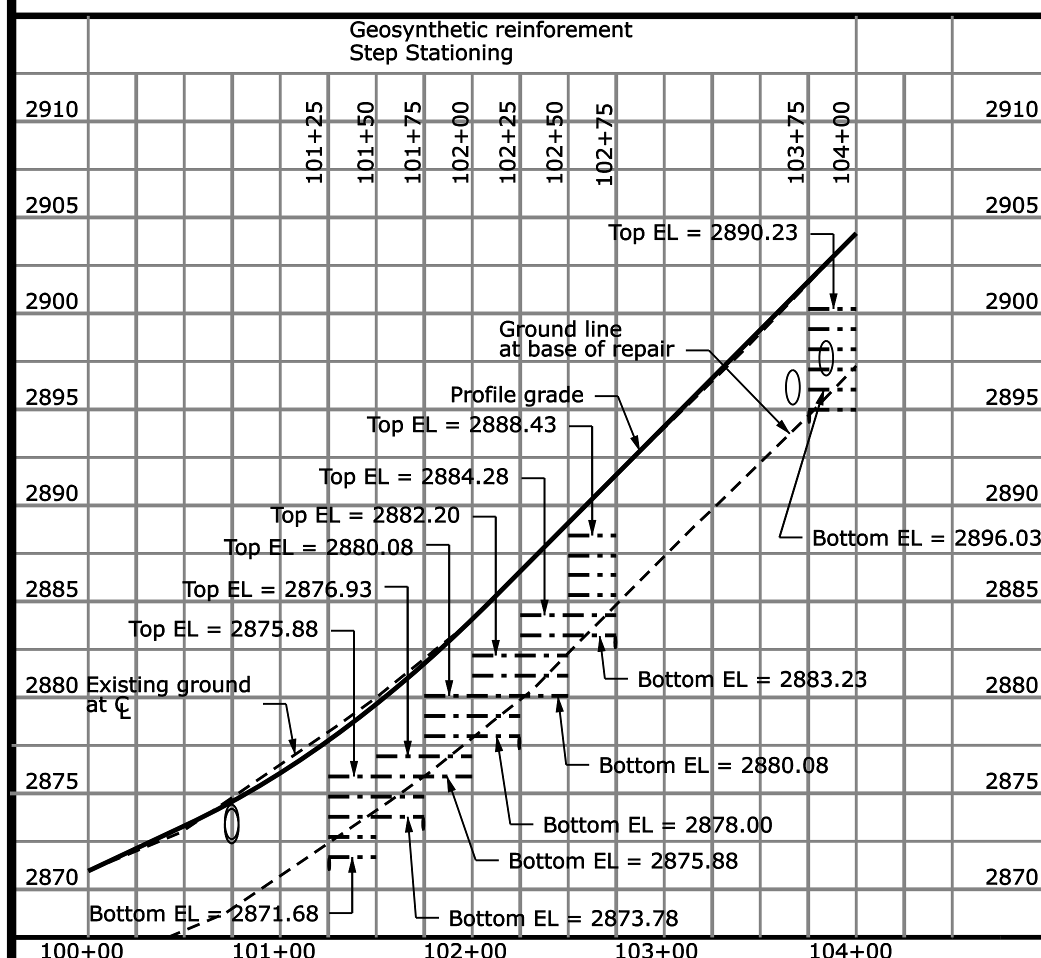
$$$$DGN $$$$DATE $$$$TIME

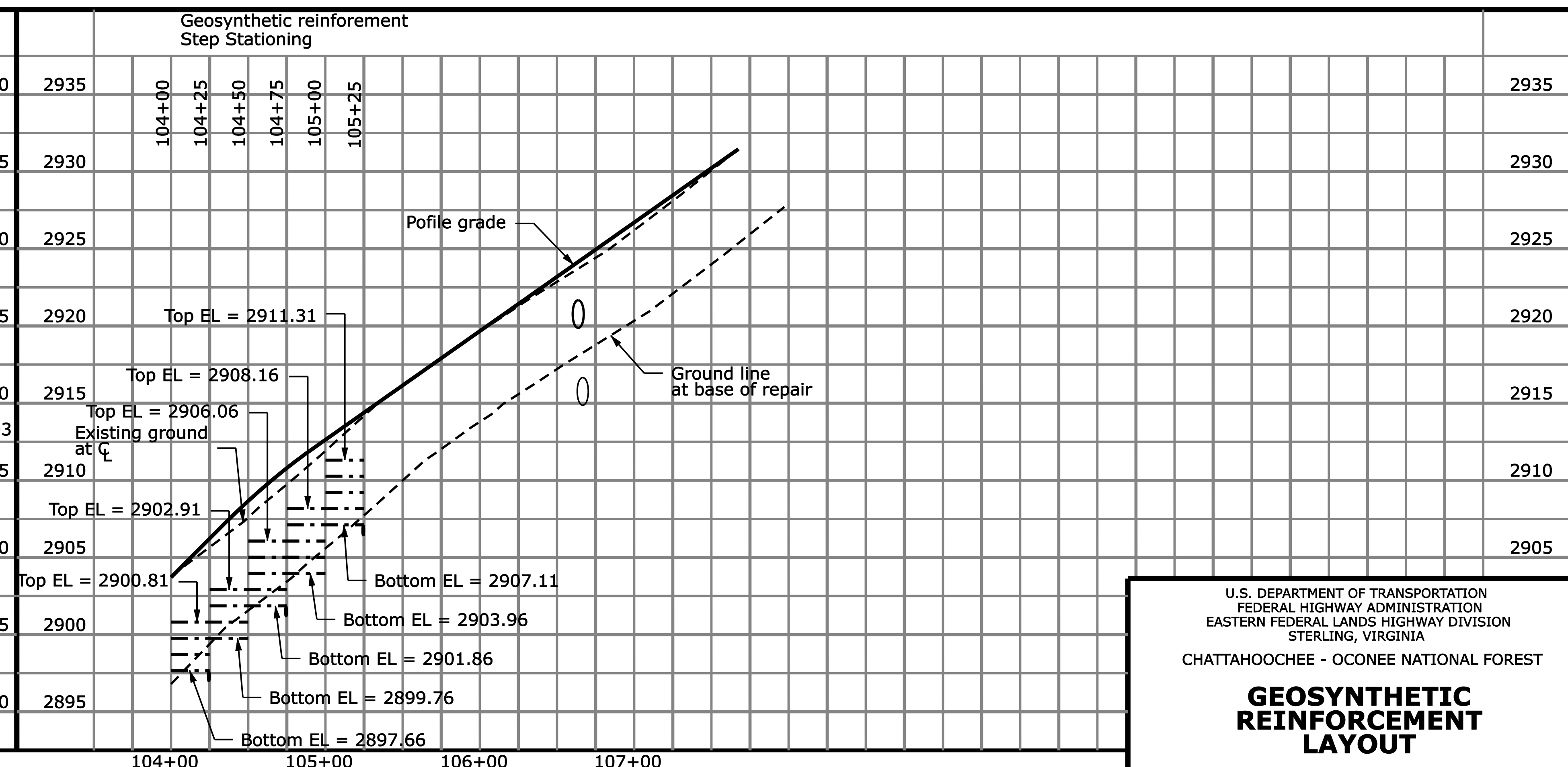
REG	STATE	PROJECT	SHEET NO.
8	GA	GA/ERFO FS 64(1)	D1



REG	STATE	PROJECT	SHEET NO.
8	GA	GA/ERFO FS 64(1)	D2







U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
EASTERN FEDERAL LANDS HIGHWAY DIVISION
STERLING, VIRGINIA

CHATTAHOOCHEE - OCONEE NATIONAL FOREST

GEOSYNTHETIC REINFORCEMENT LAYOUT

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SCALE IN FEET

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REG	STATE	PROJECT	SHEET NO.
8	GA	GA/ERFO FS 64(1)	M1

DESCRIPTION OF PROJECT

Project GA ERFO FS 64(1) is a Forest Service project located in Fannin County, Georgia. The project consists of repairing two landslides at Three Forks Road (FSR 64) mile post 2.9 and 3.0. Total disturbed area for the project is less than 1 acre.

EROSION AND SEDIMENT CONTROL NARRATIVE

1. GENERAL GUIDELINES

The Erosion and Sediment Control Plans (ESCP) are meant as a guideline for preventing erosion and controlling sediment. Soil erosion control and turf establishment measures listed and referenced in this narrative are also defined and outlined in the Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects, FP-03 U.S. Customary Units, and the Special Contract Requirements.

Coordinate the installation, use, and removal of erosion and sediment control measures with roadway construction activities to assure economical, effective, and continuous erosion and sediment control. Employ temporary stabilization practices in incremental stages as construction proceeds.

Install all erosion and sediment control measures as shown in the ESCP or as directed by the Contracting Officer (CO). Do not modify the type, size, or location of any control or practice without approval from the CO.

Preventing initial soil erosion is much more effective than trying to control eroded sediment. Therefore, stabilize all disturbed areas immediately after construction activity has temporarily or permanently ceased.

Control only sediment-laden runoff generated by the project site.

Do not drive construction equipment across flowing waterways.

Do not allow construction vehicles to track sediment off site of the project limits.

Do not allow any construction equipment to operate or access on the downslope side of perimeter control measures.

Storm water should be directed to vegetated buffer areas and should not discharge directly into surface waters.

All mechanized equipment in or near surface waters should be regularly inspected and maintained to prevent contamination of stream waters from fuels, lubricants, hydraulic fluids, or other toxic materials.

Grubbing should be postponed until just prior to beginning work in a given area to further reduce the potential for soil movement.

In general, do not disturb or clear areas located outside the limits of work indicated on the plans, preserve existing vegetation, trees and shrubs when possible, and where specifically shown in the landscaping plans or as directed by the CO.

2. EROSION AND SEDIMENT CONTROL

Unless otherwise noted, sequence of construction phasing applies to all areas of work.

PHASE I (ESTABLISH PERIMETER CONTROLS):

Prior to any clearing, grubbing, and excavation, install inlet protection and construct perimeter controls (silt fence) to ensure that any disturbed sediment does not leave the project site.

PHASE II (FINAL CONTROLS/STABILIZATION):

After completion of roadway construction, structure repair/replacement works, and landscaping, do the following as directed by the CO:

Where necessary, replace eroded topsoil and reapply permanent turf establishment to disturbed areas where vegetation has not established.
Inspect, clean, and repair all culvert outlet protection, riprap basins, and stabilized channels.

Remove silt fence and inlet protection only after all upslope areas are stabilized and vegetation is well established.

Remove all fill slope perimeter silt fence only after toe-of-fill ditches have stabilized and vegetation is well established.

Stabilize all areas that are disturbed due to the removal of sediment control devices.

3. INSPECTION AND MAINTENANCE PROCEDURES FOR CONTROLS

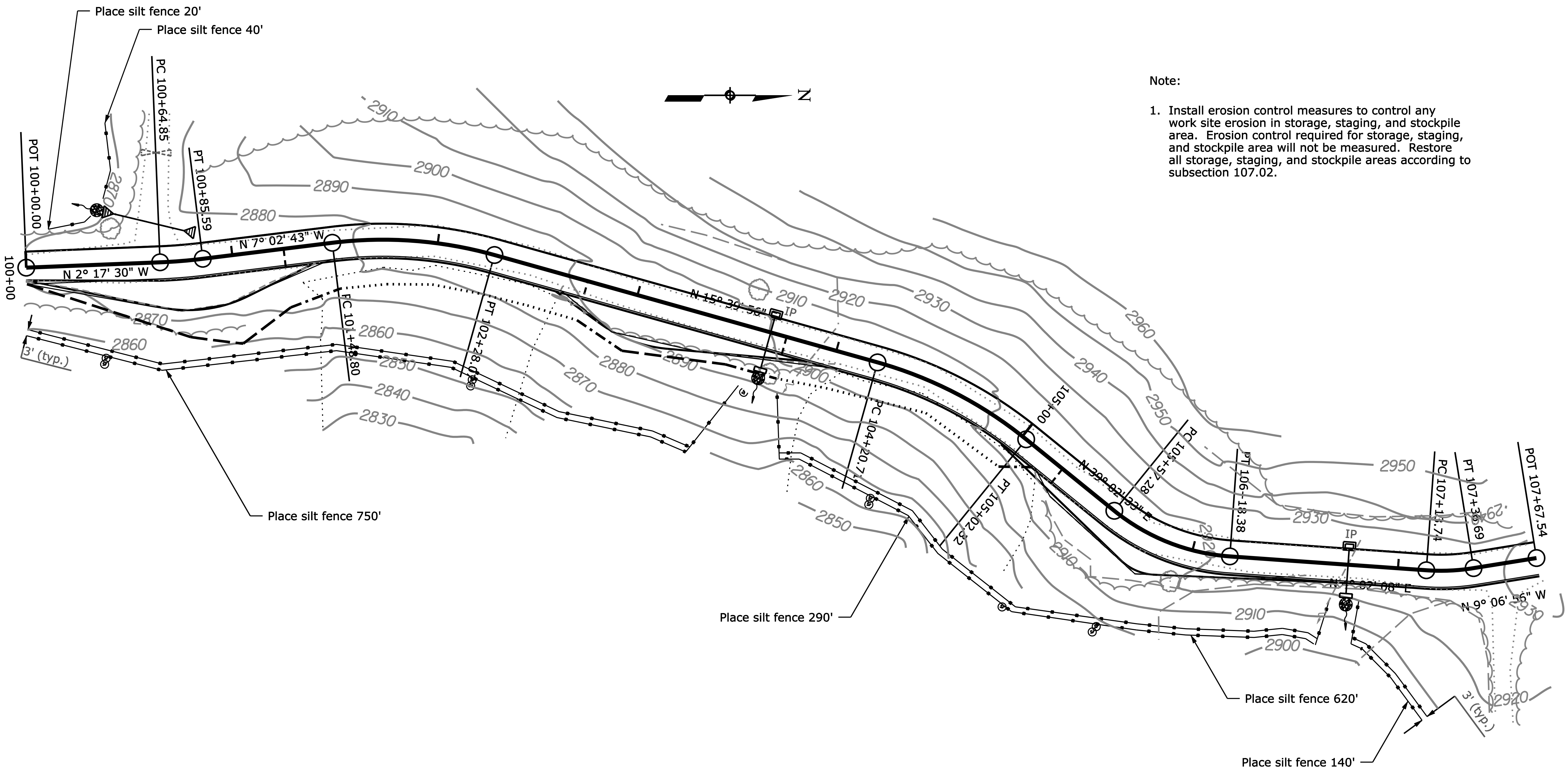
Inspect, maintain, and clean all erosion and sediment control measures according to Section 157. Check erosion and sediment control measures at least weekly, but also within 24 hours after a rain of 0.5 inch or more, and daily during wet weather. Clean erosion and sediment control measures when half full of sediment. Repair measures as necessary. Replace erosion and sediment control measures that cannot be maintained and those that are damaged by construction operations. If visible sedimentation is found off-site, take immediate measures to clean up the site. Maintain written records of inspection and repairs. Provide the CO with copies every month and the entire record at the completion of the project.

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
EASTERN FEDERAL LANDS HIGHWAY DIVISION
STERLING, VIRGINIA

CHATTAHOOCHEE - OCONEE NATIONAL FOREST

EROSION AND SEDIMENT CONTROL NARRATIVE

REG	STATE	PROJECT	SHEET NO.
8	GA	GA/ERFO FS 64(1)	M2



Note:

1. Install erosion control measures to control any work site erosion in storage, staging, and stockpile area. Erosion control required for storage, staging, and stockpile area will not be measured. Restore all storage, staging, and stockpile areas according to subsection 107.02.

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
EASTERN FEDERAL LANDS HIGHWAY DIVISION
STERLING, VIRGINIA

CHATTAHOOCHEE - OCONEE NATIONAL FOREST

EROSION AND SEDIMENT CONTROL PLAN

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SCALE IN FEET

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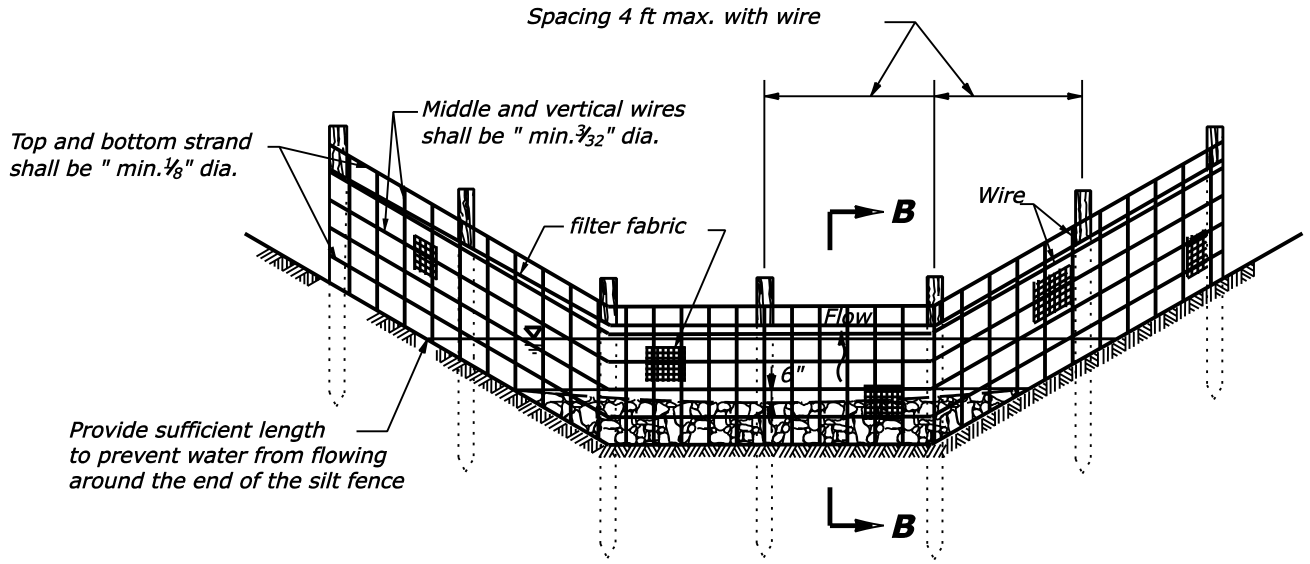
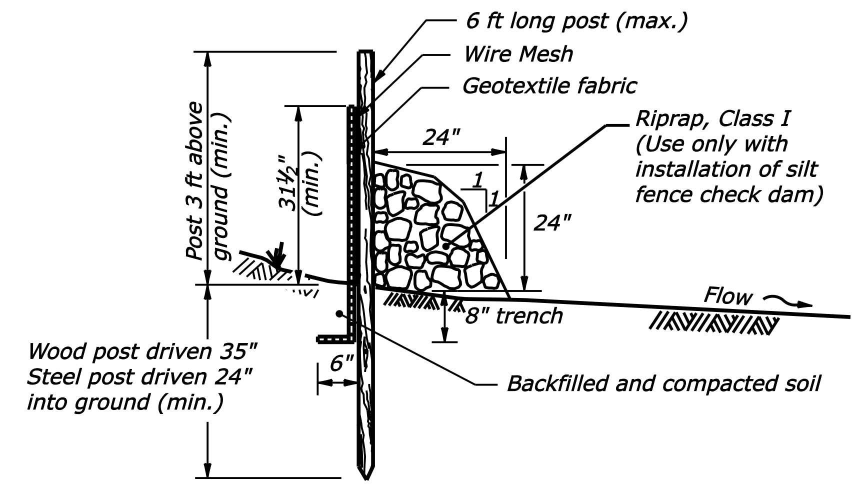
REG	STATE	PROJECT	SHEET NO.
8	GA	GA/ERFO FS 64(1)	S1



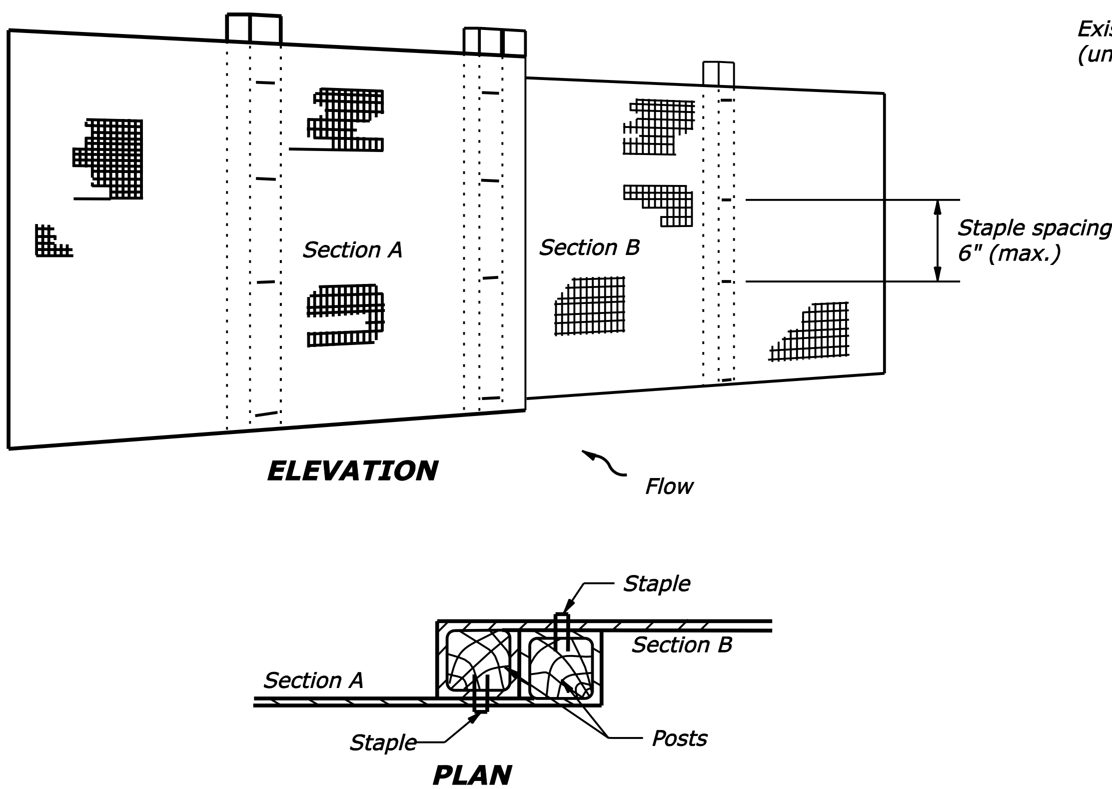
WIRE-BACKED SILT FENCE CHECK DAM
(See note 2)



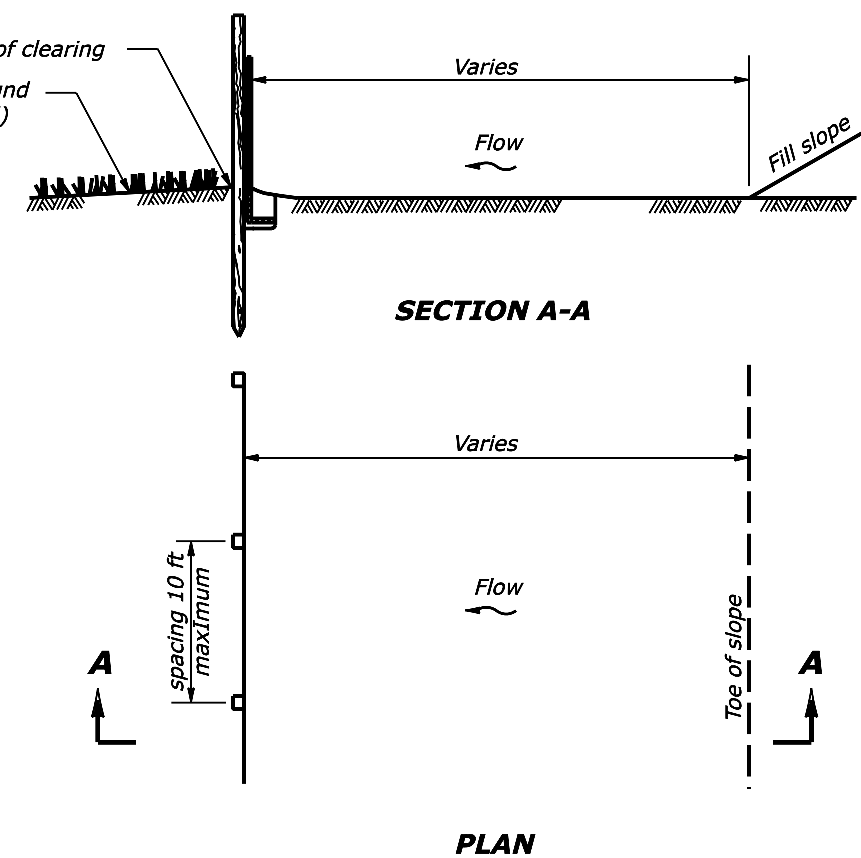
SECTION B-B

NOTES:

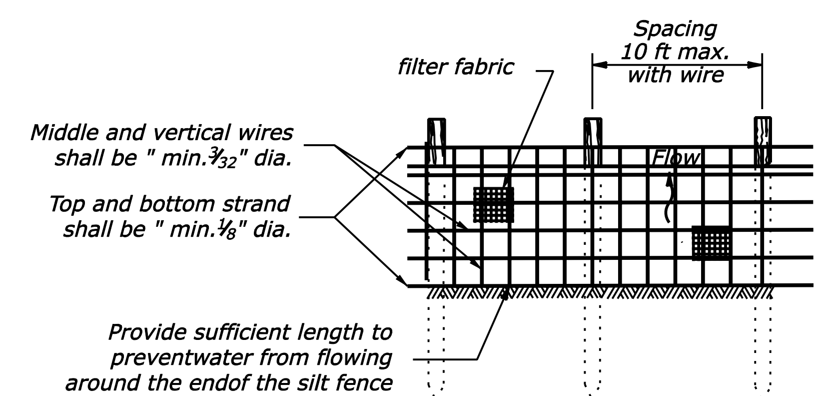
1. Use silt fence check dam installation for low flow conditions only when specified on Erosion Control Plan.
2. Alternate pre-assembled silt fence options will be allowed as long as specified minimums are satisfied. Follow manufacturer's information for installation procedures.
3. Wire mesh shall be a minimum of 32 inches in width and shall have a minimum of 6 line wires with 12 inch stay spacing.
4. Filter fabric shall be a minimum of 45 inches in width and shall be fastened adequately to the wire as directed by the CO.
5. Steel post shall be 60 inches minimum in height and be of the self-fastener angle steel type.
6. Wood post shall be 70 inches minimum in height and 3 inches in diameter.
7. Extend wire and fabric into trench.



JOINING TWO ADJACENT SILT FENCE SECTIONS



WIRE-BACKED SILT FENCE INSTALLATION AT TOE OF FILL



ELEVATION

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
EASTERN FEDERAL LANDS HIGHWAY DIVISION
STERLING, VIRGINIA

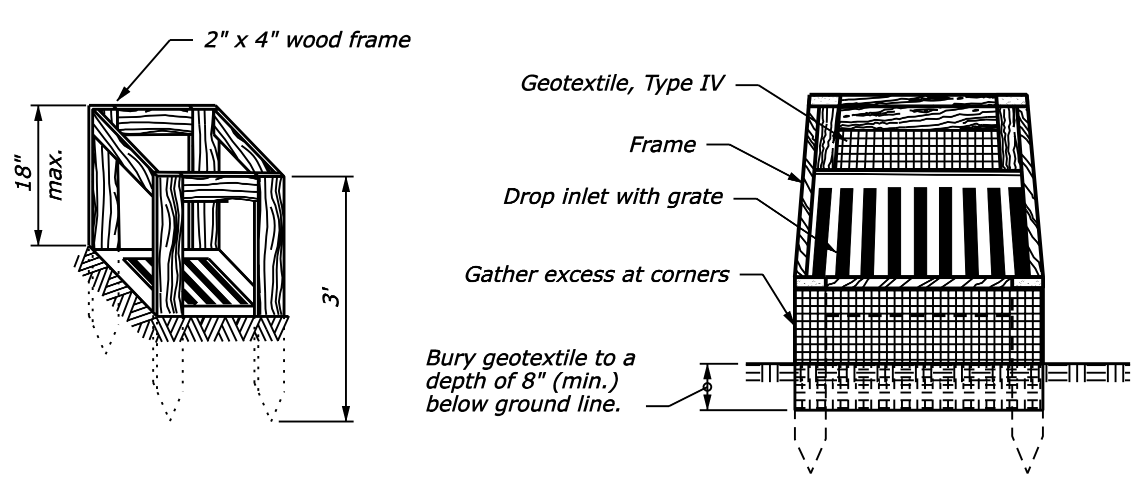
U.S. CUSTOMARY DETAIL

WIRE-BACKED SILT FENCE

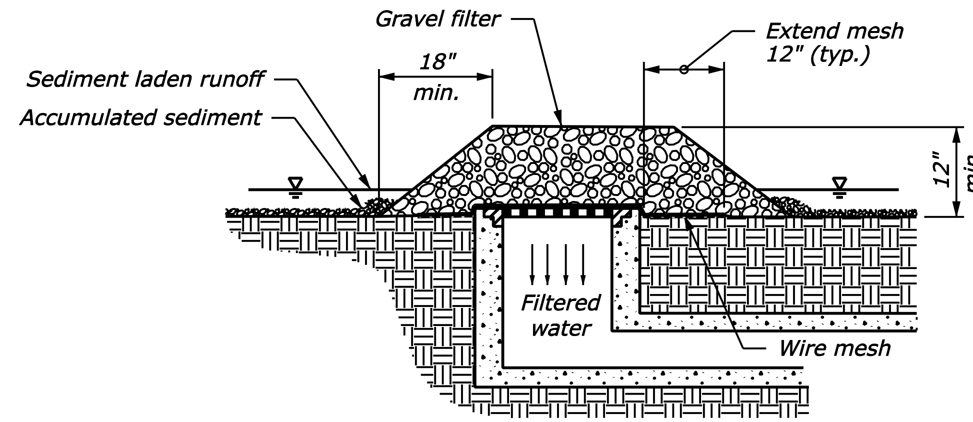
DETAIL APPROVED FOR USE
REVISED: 06/99 04/07

DETAIL
E157-02

REG	STATE	PROJECT	SHEET NO.
8	GA	GA/ERFO FS 64(1)	S2



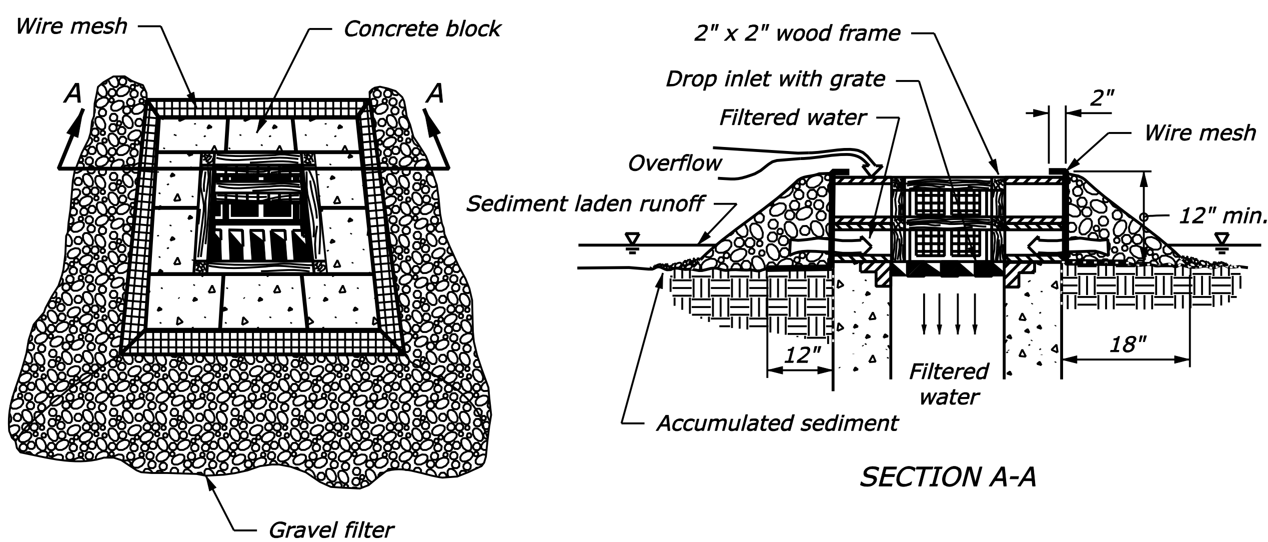
SILT FENCE DROP INLET PROTECTION (TYPE A)



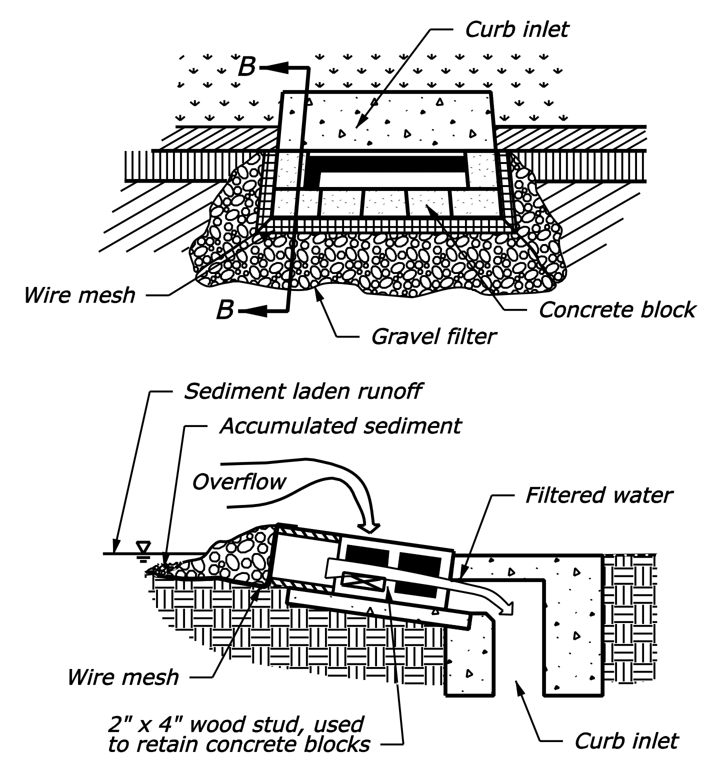
GRAVEL AND WIRE MESH DROP INLET PROTECTION (TYPE B)

NOTE:

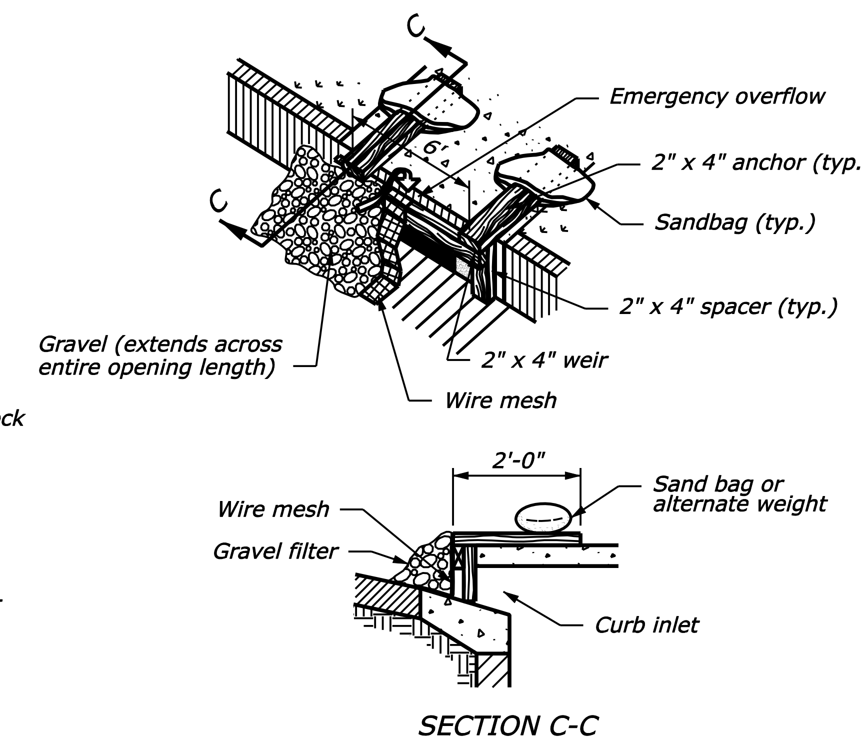
1. For gravel filters use 2" - 3" diameter coarse aggregate.
2. Use wire mesh with ½" x ½" openings.
3. Use Type A inlet protection in sump locations only.
4. Use Type B inlet protection only in sump locations where heavy concentrated flows are not expected. Do not use where ponding around the structure might cause inconvenience or damage.



BLOCK AND GRAVEL DROP INLET PROTECTION (TYPE C)



CURB INLET PROTECTION, BLOCK AND GRAVEL (TYPE D)



CURB INLET PROTECTION, WOODEN WEIR (TYPE E)

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
EASTERN FEDERAL LANDS HIGHWAY DIVISION
STERLING, VIRGINIA

U.S. CUSTOMARY STANDARD

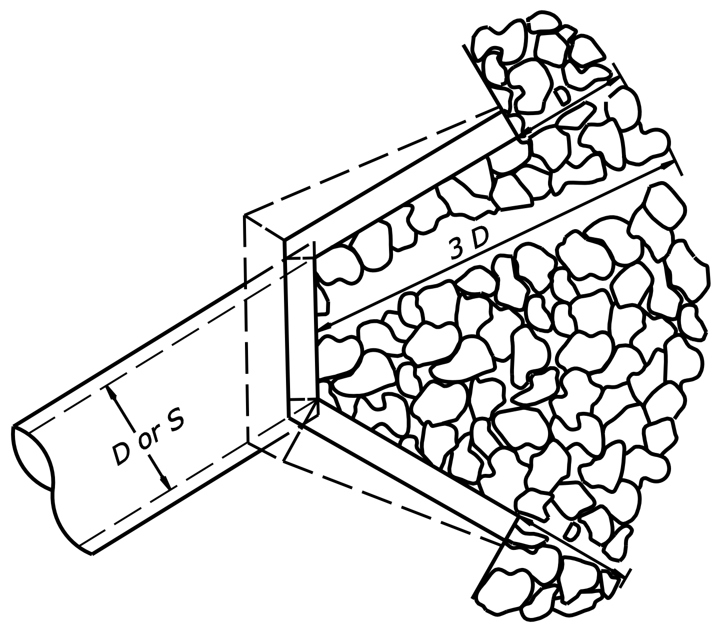
TEMPORARY INLET PROTECTION

STANDARD APPROVED FOR USE 6/2005

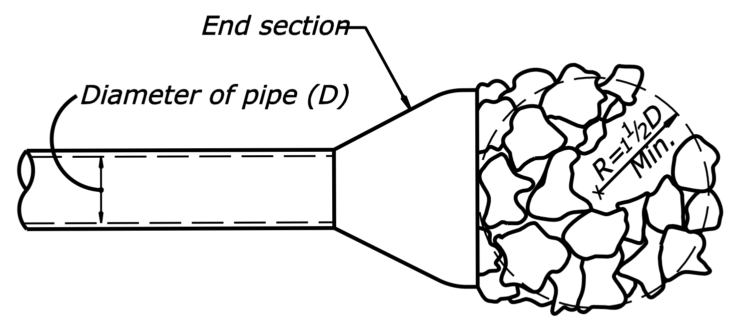
REVISED:

STANDARD 157-2

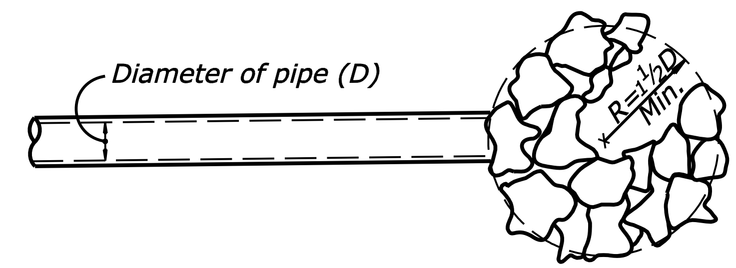
DEPTH (d)	
Riprap Class	Depth (d)-(in)
1	12
2	18
3	24
4	30
5	42
6	48



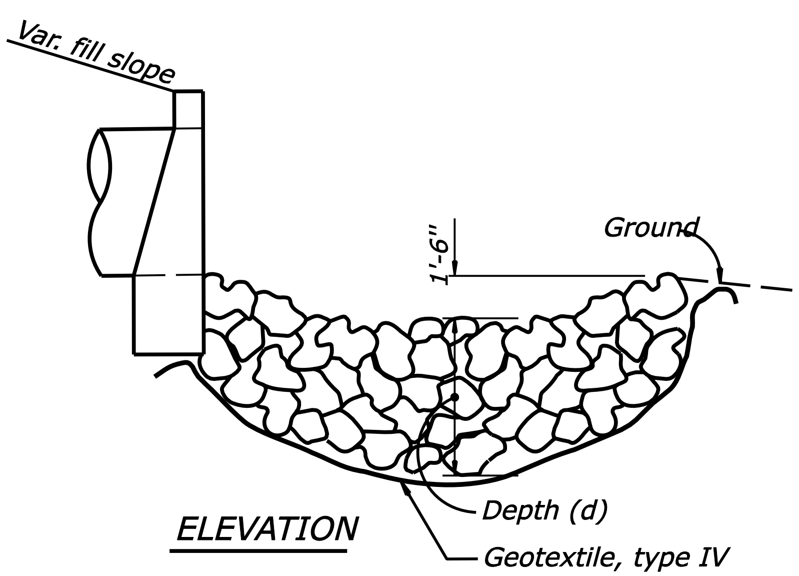
PLAN



PLAN

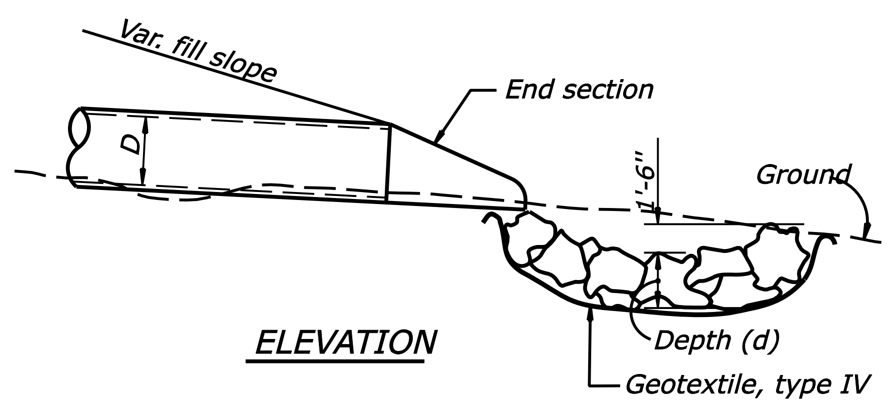


PLAN



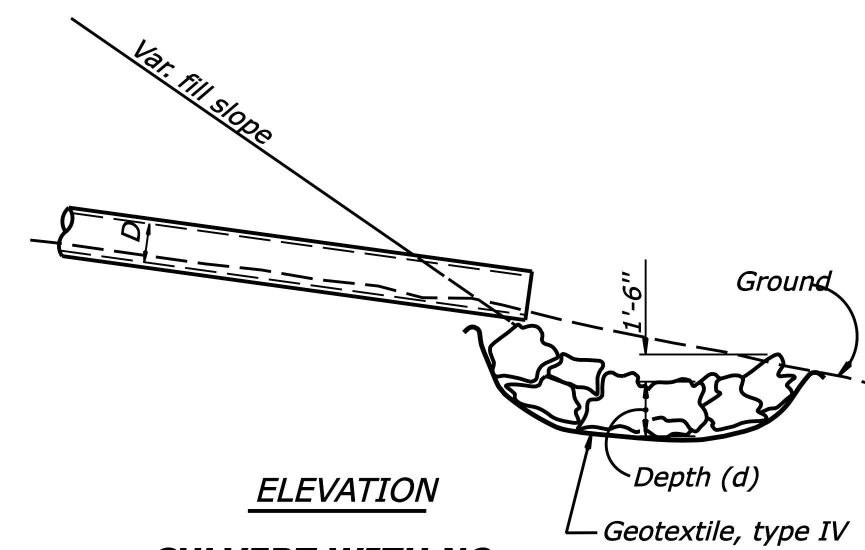
ELEVATION

CULVERT WITH HEADWALL



ELEVATION

CULVERT WITH END SECTION



ELEVATION

CULVERT WITH NO END TREATMENT

NOTE:
For arch or elliptical pipes, use equivalent diameter for (D) dimension

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
EASTERN FEDERAL LANDS HIGHWAY DIVISION
STERLING, VIRGINIA

U.S. CUSTOMARY DETAIL

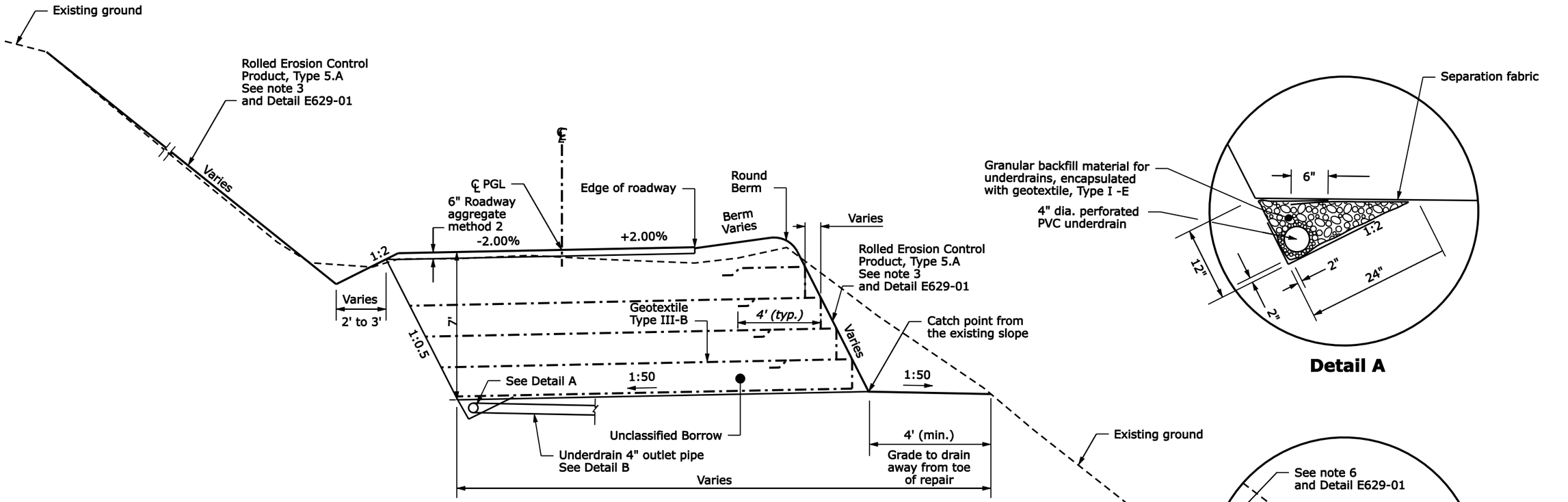
LOOSE RIPRAP AT CULVERT

DETAIL APPROVED FOR USE

REVISED: 05/07

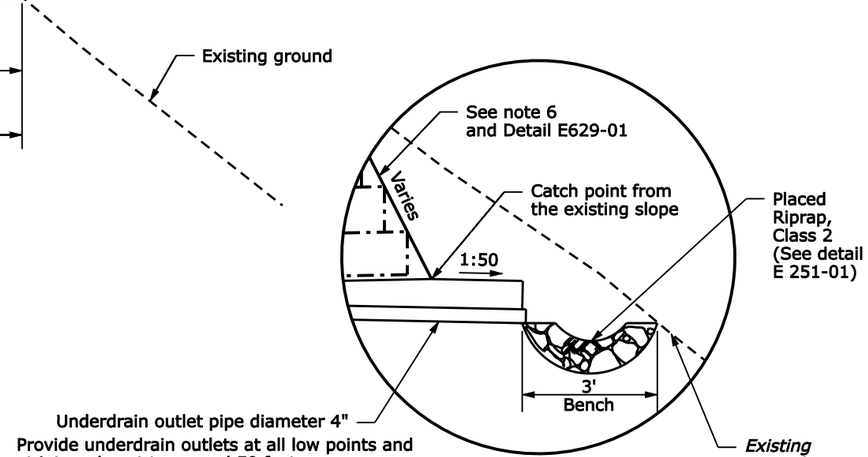
DETAIL E251-01

REG	STATE	PROJECT	SHEET NO.
8	GA	GA/ERFO FS 64(1)	S4



Slide Repair Section

Detail A



Detail B

Note:

1. *Establish slope catch point by offsetting from the existing slope at a minimum of 4' from the point as shown on geosynthectic reinforcement section.*
2. *Place and compact backfill material in lifts not to exceed 8", and in accordance with section 204.*
3. *Place conserved topsoil, seeding, and mulch using hydraulic method on slopes and ditches according to sections 624 and 625. Place rolled erosion control product, Type 5.A according to section 629 (see Detail E629-01). See typical section sheets B1-B4 for the limits of the Rolled Erosion Control Product, Type 5.A*
4. *Install riprap, class 2 protection at all 4" underdrain outlets see Detail B and Detail E251-01.*

Not to scale

U.S. DEPARTMENT OF TRANSPORTATION
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EASTERN FEDERAL LANDS HIGHWAY DIVISION
STERLING, VIRGINIA

CHATTAHOOCHEE - OCONEE NATIONAL FOREST

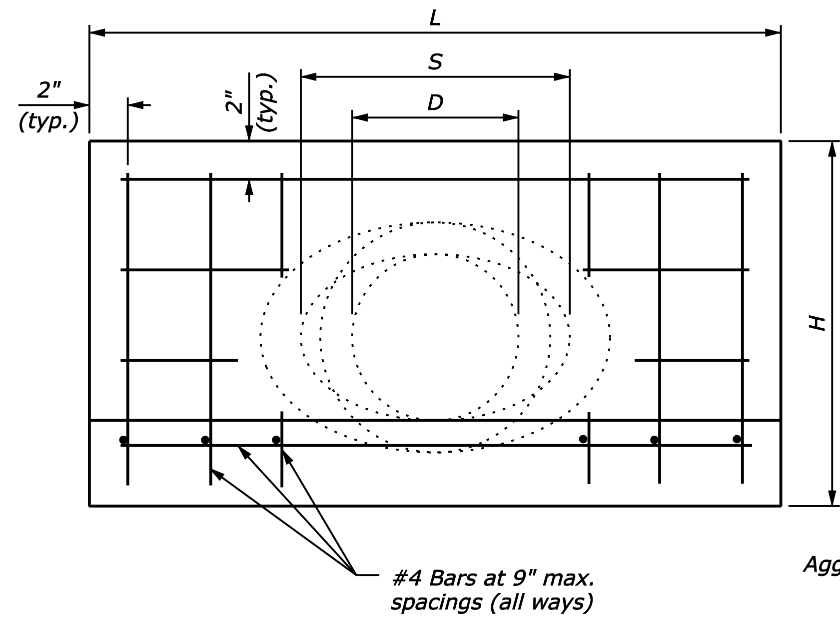
GEOSYNTHETIC REINFORCEMENT

DETAIL APPROVED FOR USE XX/XX

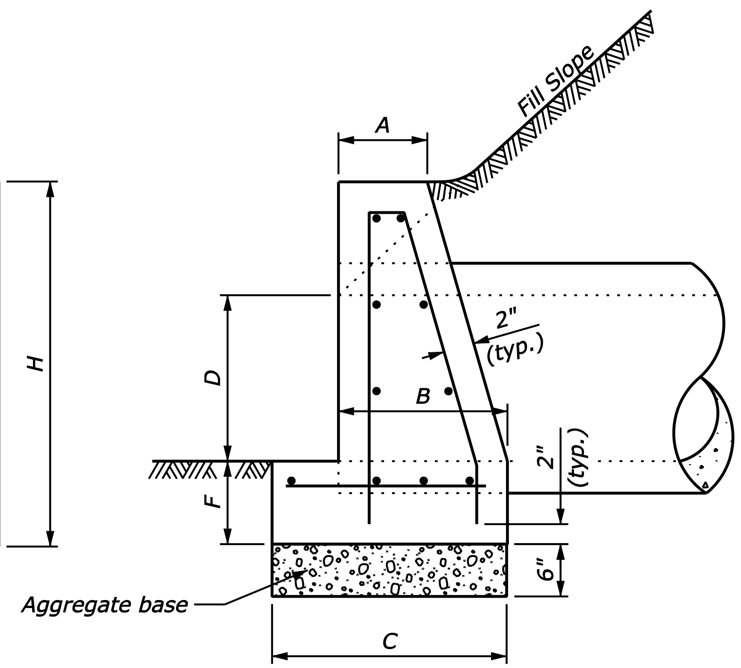
DETAIL **E259A**

$$$$DATE$$$$ $TIME$ $$$$DGN$$$$

REG	STATE	PROJECT	SHEET NO.
8	GA	GA/ERFO FS 64(1)	S5



FRONT ELEVATION



SIDE ELEVATION

NOTE:

1. All headwalls are oriented parallel to the roadway centerline unless otherwise indicated in the plans or by the CO.
2. When pipes are on a skew, adapt and lengthen headwalls as directed.
3. Chamfer all exposed corners not rounded to ¾".
4. Quantities shown are for one headwall with pipe at right angles.
5. Construct headwalls using dimensions shown under values for 1V:1.5H slope, unless otherwise designated by the CO.

HEADWALL FOR CIRCULAR PIPE

DIAMETER OF PIPE CULVERT						
	6"	15"	18"	21" or 24"	27" or 30"	33" or 36"
A	0'-6"	0'-8"	0'-9"	0'-11"	1'-0"	1'-0"
B	0'-9"	1'-1"	1'-3"	1'-6"	1'-9"	2'-0"
C	1'-2"	1'-7"	1'-9"	2'-2"	2'-6"	2'-9"
D	1'-0"	1'-3"	1'-6"	2'-0"	2'-6"	3'-0"
F	0'-6"	0'-8"	0'-8"	0'-9"	0'-9"	0'-9"
H	2'-0"	2'-11"	3'-2"	3'-9"	4'-3"	4'-9"
L	3'-8"	5'-0"	6'-0"	8'-0"	10'-0"	12'-0"
CUBIC YARDS OF CONCRETE						
Conc. Pipe	0.241	0.492	0.697	1.319	2.067	2.947
C.M. Pipe	0.257	0.521	0.739	1.398	2.198	3.145

HEADWALL FOR ELLIPTICAL PIPE

SIZE OF ELLIPTICAL PIPE CULVERT (SPAN x RISE)										
	23" x 14"	30" x 19"	34" x 22"	38" x 24"	42" x 27"	45" x 29"	49" x 32"	53" x 34"	60" x 38"	68" x 43"
A	0'-8"	0'-9"	0'-10"	0'-10"	0'-11"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"
B	1'-2"	1'-5"	1'-6"	1'-8"	1'-9"	1'-10"	1'-11"	1'-11"	1'-11"	2'-0"
C	1'-8"	1'-11"	2'-1"	2'-4"	2'-5"	2'-7"	2'-8"	2'-9"	3'-3"	3'-6"
D	1'-2"	1'-7"	1'-10"	2'-0"	2'-3"	2'-5"	2'-8"	2'-10"	3'-2"	3'-7"
F	0'-8"	0'-8"	0'-9"	0'-9"	0'-9"	0'-9"	0'-9"	0'-9"	0'-9"	0'-9"
H	2'-10"	3'-3"	3'-7"	3'-9"	4'-0"	4'-2"	4'-5"	4'-7"	4'-11"	5'-4"
L	5'-5"	7'-2"	8'-6"	9'-2"	10'-2"	10'-11"	12'-1"	12'-11"	13'-0"	13'-0"
S	1'-11"	2'-6"	2'-10"	3'-2"	3'-6"	3'-9"	4'-1"	4'-5"	5'-0"	5'-8"
CUBIC YARDS OF CONCRETE										
Conc. Pipe	0.502	0.855	1.236	1.500	1.811	2.101	2.512	2.801	2.969	2.904

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
FEDERAL LANDS HIGHWAY

U.S. CUSTOMARY STANDARD

CONCRETE HEADWALL FOR SMALL PIPE CULVERT

STANDARD APPROVED FOR USE 6/2005

REVISED:

STANDARD 601-4

REG	STATE	PROJECT	SHEET NO.
8	GA	GA/ERFO FS 64(1)	S6

METAL ROUND PIPE CULVERT

FILL HEIGHT AND METAL THICKNESS TABLE FOR HELICAL LOCKSEAM AND WELDED SEAM PIPE CULVERT

STEEL

PIPE SIZE DIAMETER INCHES	MINIMUM COVER INCHES	2⅔" x ½" CORRUGATIONS					3" x 1" CORRUGATIONS					5" x 1" CORRUGATIONS				
		METAL THICKNESS (INCH/GAGE)														
		0.064/16	0.079/14	0.109/12	0.138/10	0.168/8	0.064/16	0.079/14	0.109/12	0.138/10	0.168/8	0.064/16	0.079/14	0.109/12	0.138/10	0.168/8
		MAXIMUM FILL HEIGHT ABOVE TOP OF PIPE (FEET)														
12	12	100	100	100	100	100										
15	12	100	100	100	100	100										
18	12	100	100	100	100	100										
21	12	100	100	100	100	100										
24	12	100	100	100	100	100										
30	12	85	100	100	100	100										
36	12	71	89	100	100	100	81	100	100	100	100					
42	12	61	76	100	100	100	70	87	100	100	100					
48	12	53	66	93	100	100	61	76	100	100	100	54	68	95	100	100
54	12		59	83	100	100	54	68	95	100	100	48	60	85	100	100
60	12			74	97	100	49	61	86	100	100	43	54	76	98	100
66	12				87	100	44	55	78	100	100	39	49	69	89	100
72	12				80	97	40	51	71	92	100	36	45	63	82	100
78	12					87	37	47	66	85	100	33	42	58	75	92
84	12					75	35	43	61	78	96	31	39	54	70	86
90	12						32	40	57	73	90	29	36	51	65	80
96	12							38	53	69	84		34	48	61	75
102	18							36	50	65	79		32	45	57	71
108	18								47	61	75			42	54	67
114	18								45	58	71			40	52	63
120	18								43	55	67			38	49	60
126	18									52	64				47	57
132	18									50	61				44	54
138	18									48	58				42	52
144	18										56					50

ALUMINUM

PIPE SIZE DIAMETER INCHES	MINIMUM COVER INCHES	2⅔" x ½" CORRUGATIONS					3" x 1" CORRUGATIONS				
		METAL THICKNESS (INCH/GAGE)									
		0.060/16	0.075/14	0.105/12	0.135/10	0.164/8	0.060/16	0.075/14	0.105/12	0.135/10	0.164/8
		MAXIMUM FILL HEIGHT ABOVE TOP OF PIPE (FEET)									
12	12	100	100	100	100	100					
15	12	100	100	100	100	100					
18	12	100	100	100	100	100					
21	12	88	100	100	100	100					
24	12	77	97	100	100	100					
30	12	62	77	100	100	100	71	89	100	100	100
36	12	52	64	90	100	100	59	74	100	100	100
42	12	44	55	77	99	100	51	64	89	100	100
48	12			67	87	100	44	56	78	100	100
54	18			54	71	88	39	50	69	93	100
60	18				57	72	35	45	62	83	98
66	18					58	32	40	56	76	89
72	18					45	30	37	55	70	82
78	24							34	48	64	75
84	24								44	59	70
90	24								41	62	65
96	24								38	51	61
102	24									46	55
108	24									42	50
114	24										45
120	24										40

NOTE:

1. When directed, camber pipe culverts upward from a chord through the inlet and outlet inverts an ordinate amount equal to 1% of the pipe length. Develop camber on a parabolic curve. If the midpoint elevation on the parabolic curve as designed exceeds the elevation of the inlet invert, reduce the amount of camber or increase the pipe culvert gradient.
2. Fill heights exceeding 100 feet require special analysis by the CO.
3. The fill heights in the table are for helical lockseam and welded seam pipe only. Fill heights for culvert pipe with annular corrugations are more restrictive than those of helical lockseam and welded seam pipe. Obtain approval before furnishing annular corrugation pipe.
4. Measure minimum cover from the top of the pipe culvert to the subgrade for flexible pavements, and to the top of the pavement for rigid pavements. Measure maximum fill height from the top of the pipe to the top of the pavement for both flexible and rigid pavement.

METAL PIPE ARCH CULVERT

FILL HEIGHT AND METAL THICKNESS TABLE FOR HELICAL LOCKSEAM AND WELDED SEAM PIPE CULVERT

STEEL

PIPE ARCH SIZE SPAN x RISE INCHES	EQUI-VALENT DIAMETER INCHES	MINIMUM CORNER RADIUS INCHES	MINIMUM COVER INCHES	2⅔" x ½" CORRUGATIONS					3" x 1" CORRUGATIONS					5" x 1" CORRUGATIONS				
				METAL THICKNESS (INCH/GAGE)														
				0.064/16	0.079/14	0.109/12	0.138/10	0.168/8	0.079/14	0.109/12	0.138/10	0.168/8	0.079/14	0.109/12	0.138/10	0.168/8		
				MAXIMUM FILL HEIGHT ABOVE TOP OF PIPE (FEET)														
17 x 13	15	3	12	13														
21 x 15	18	3	12	12														
24 x 18	21	3	12	13														
28 x 20	24	3	12	13														
35 x 24	30	3	12	12														
42 x 29	36	3.5	12	12														
49 x 33	42	4	12		12													
57 x 38	48	5	12			12												
60 x 46	54	8	15							21					21			
64 x 43	54	6	12			12												
66 x 51	60	9	15							21					21			
71 x 47	60	7	12				12											
73 x 55	66	12	18							20					20			
77 x 52	66	8	12					12										
81 x 59	72	14	18						17				17					
83 x 57	72	9	12					12										
87 x 63	78	14	18						17				17					
95 x 67	84	16	18						17				17					
103 x 71	90	16	18							17			17					
112 x 75	96	18	21							16					16			
117 x 79	102	18	21							16					16			
128 x 83	108	18	24								16					16		
137 x 87	114	18	24								16					16		
142 x 91	120	18	24									16						16

ALUMINUM

PIPE ARCH SIZE SPAN x RISE INCHES	EQUI-VALENT DIAMETER INCHES	MINIMUM CORNER RADIUS INCHES	MINIMUM COVER INCHES	2⅔" x ½" CORRUGATIONS				3" x 1" CORRUGATIONS			
				METAL THICKNESS (INCH/GAGE)							
				0.060/16	0.075/14	0.105/12	0.135/10	0.060/16	0.075/14	0.105/12	0.135/10
				MAXIMUM FILL HEIGHT ABOVE TOP OF PIPE (FEET)							
17 x 13	15	3	12	13							
21 x 15	18	3	12	12							
24 x 18	21	3	12	13							
28 x 20	24	3	12		13						
35 x 24	30	3	12		12						
42 x 29	36	3.5	15			12					
49 x 33	42	4	15			12					
57 x 38	48	5	15				12				
60 x 46	54	8	15					21			
64 x 43	54	6	18				12				
66 x 51	60	9	18					21			
73 x 55	66	12	18						20		
81 x 59	72	14	21							17	
87 x 63	78	14	21							17	
95 x 67	84	16	24							17	
103 x 71	90	16	24								17

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
FEDERAL LANDS HIGHWAY

U.S. CUSTOMARY STANDARD

METAL PIPE CULVERT

STANDARD APPROVED FOR USE 12/1993
REVISED: 4/1994 6/2005

STANDARD 602-1

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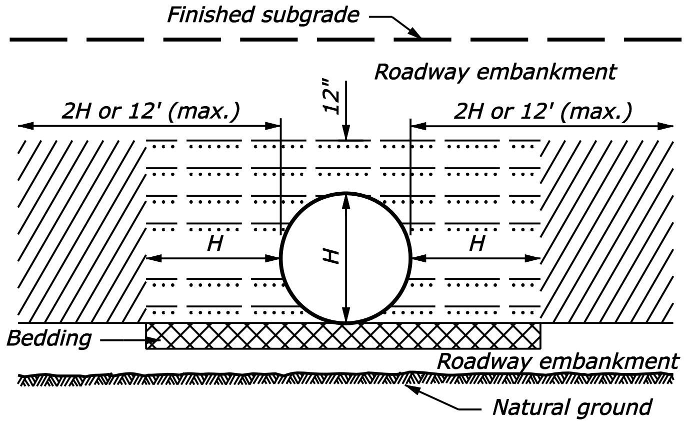
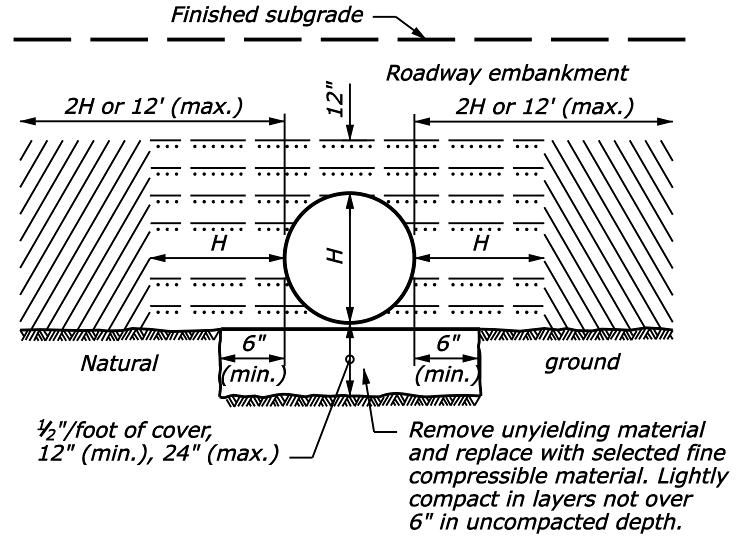
REG	STATE	PROJECT	SHEET NO.
8	GA	GA/ERFO FS 64(1)	S7

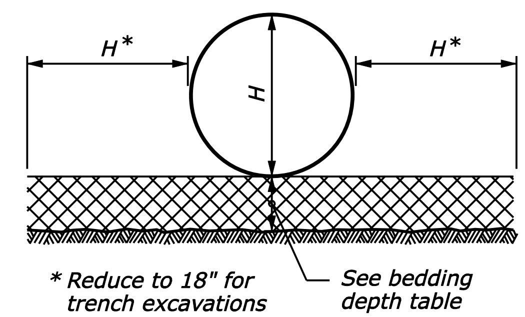


ABOVE NATURAL GROUND



ON UNYIELDING MATERIAL

BEDDING DEPTH	
PIPE SIZE (H)	DEPTH
12" to 54"	4"
> 54"	6"



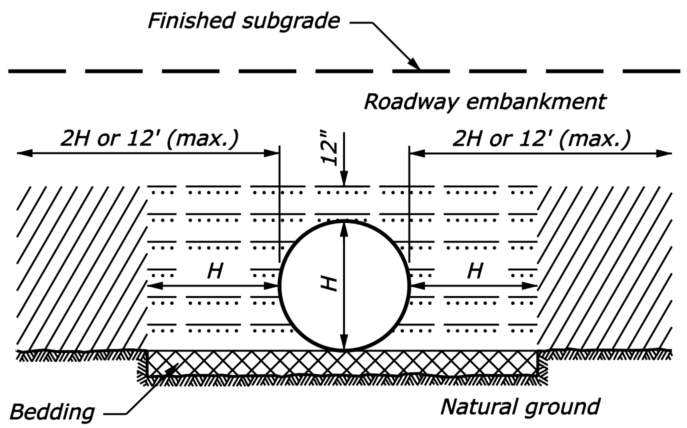
PIPE BEDDING

NOTE:

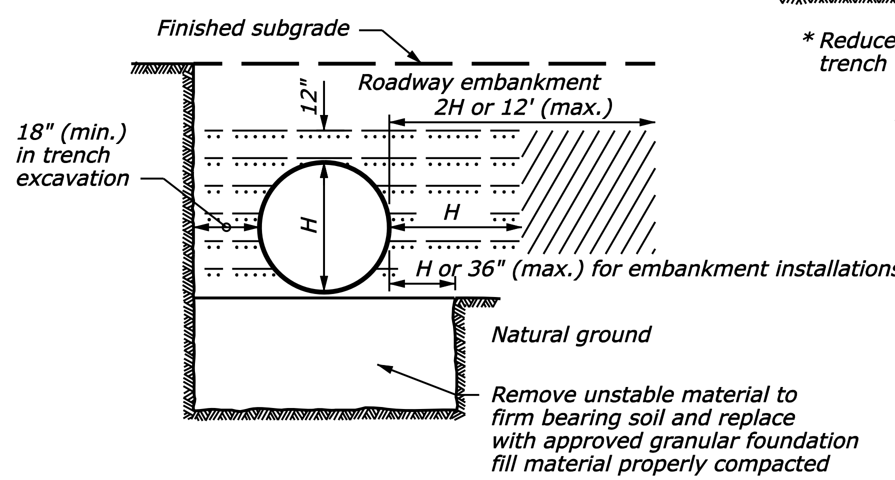
1. When directed, camber pipe culverts upward from a chord through the inlet and outlet inverts an ordinate amount equal to 1% of the pipe length. Develop camber on a parabolic curve. If the midpoint elevation on the parabolic curve as designed exceeds the elevation of the inlet invert, reduce the amount of camber or increase the pipe culvert gradient.

2. H equals the diameter of all round pipe culverts or the rise dimension of all pipe arch culverts.

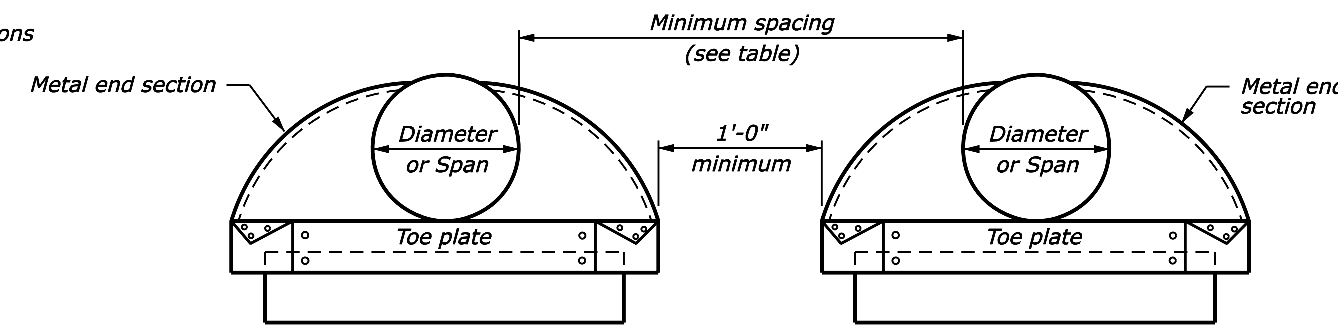
MINIMUM SPACING	
DIAMETER or SPAN	SPACING
UP to 48"	24"
48" and UP	Half diameter or span OR 36" whichever is less



ON NATURAL GROUND

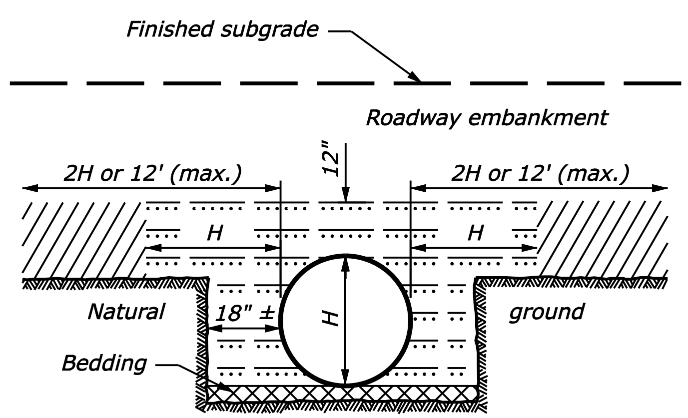


ON UNSTABLE MATERIAL

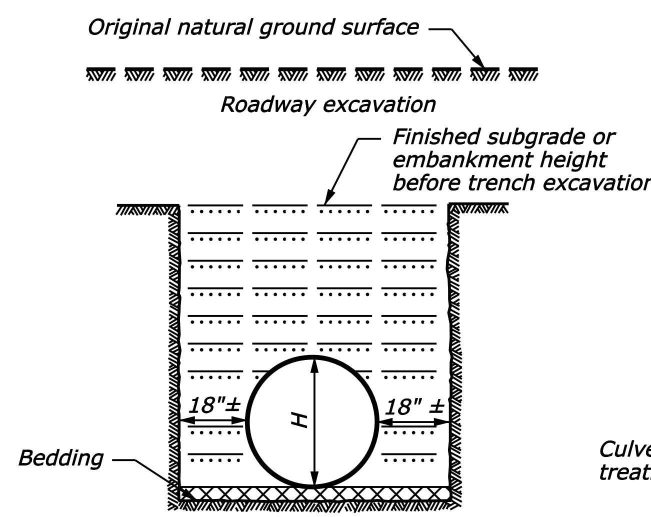


ELEVATION

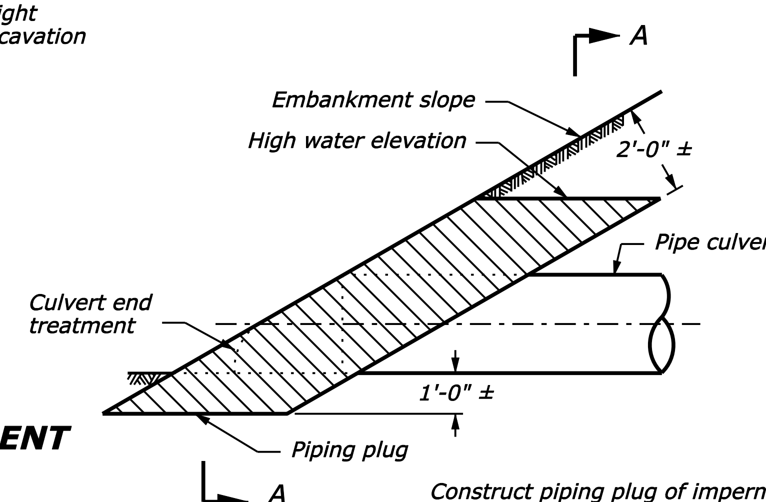
MULTIPLE PIPE INSTALLATION

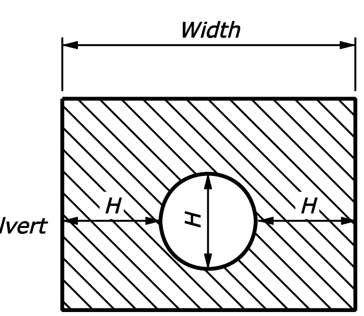


ABOVE AND BELOW NATURAL GROUND



BELOW NATURAL GROUND OR TRENCH EXCAVATION IN EMBANKMENT





SECTION A-A

Bedding material (uncompacted)

Embankment material placed in layers not exceeding 6" compacted depth.

Compacted backfill material placed in layers not exceeding 6" compacted depth meeting the following:
Metal Pipe: Maximum particle size = 3"
Soil classification: A-1, A-2, or A-3
Plastic Pipe: Maximum particle size: 1½"
Soil classification: A-1, A-2-4, A-2-5, or A-3
Or lean concrete backfill in accordance with Section 614.

Construct piping plug of impermeable backfill material at the pipe culvert inlet where granular material is used for backfill. Width may be adjusted to tie into impervious material.

PIPING PLUG

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
FEDERAL LANDS HIGHWAY

U.S. CUSTOMARY STANDARD

METAL AND PLASTIC PIPE CULVERT BEDDING

STANDARD APPROVED FOR USE 12/1993
REVISED: 4/1994 6/2005

STANDARD 602-3

$DATE$
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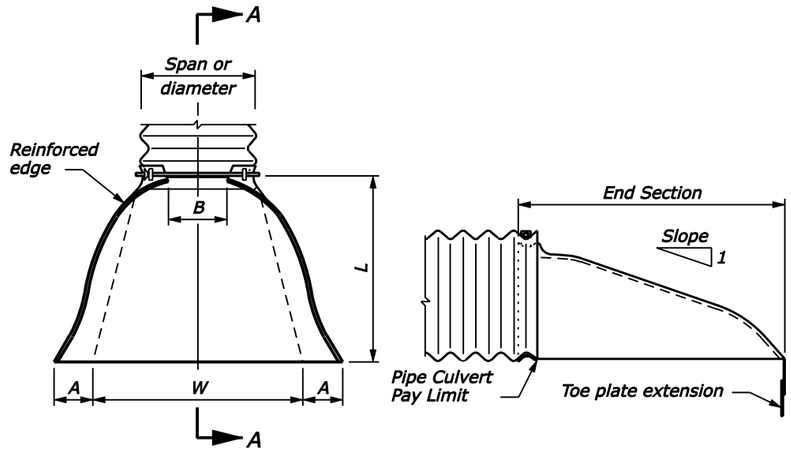
REG	STATE	PROJECT	SHEET NO.
8	GA	GA/ERFO FS 64(1)	S9

END SECTIONS FOR ROUND PIPE CULVERT

PIPE SIZE DIAMETER INCHES	METAL THICKNESS STEEL		METAL THICKNESS ALUMINUM		DIMENSIONS INCHES					SLOPE
	INCHES	GAGE	INCHES	GAGE	A (min)	B (max)	H (min)	L (±2")	W (max)	Approx.
12	0.064	16	0.060	16	5	7	6	21	44	2¼
15	0.064	16	0.060	16	6	8	6	26	52	2¼
18	0.064	16	0.060	16	7	10	6	31	58	2⅛
21	0.064	16	0.060	16	8	12	6	36	66	2⅛
24	0.064	16	0.060	16	9	13	6	41	72	2⅛
30	0.079	14	0.075	14	11	16	8	51	88	2⅛
36	0.079	14	0.075	14	13	19	9	60	105	2
42	0.109	12	0.105	12	15	25	10	69	122	2⅛
48	0.109	12	0.105	12	17	29	12	78	131	2
54	0.109	12	0.105	12	17	33	12	84	143	2
60	0.109	12	0.105	12	17	36	12	87	157	1⅞
66	0.109	12	0.105	12	17	39	12	87	162	1⅝
72	0.109	12	0.105	12	17	44	12	87	169	1½
78	0.109	12	0.105	12	17	48	12	87	178	1⅜
84	0.109	12	0.105	12	17	52	12	87	184	1⅓
90	0.109	12	0.105	12	17	58	12	87	188	1¼
96	0.109	12	0.105	12	17	58	12	87	197	1⅛

END SECTIONS FOR PIPE ARCH CULVERT

PIPE SIZE SPAN x RISE INCHES	METAL THICKNESS STEEL		METAL THICKNESS ALUMINUM		DIMENSIONS INCHES					SLOPE
	INCHES	GAGE	INCHES	GAGE	A (min)	B (max)	H (min)	L (±2")	W (max)	Approx.
17 x 13	0.064	16	0.060	16	5	9	6	20	52	2⅛
21 x 15	0.064	16	0.060	16	6	11	6	24	58	2
24 x 18	0.064	16	0.060	16	7	12	6	28	58	2⅛
28 x 20	0.064	16	0.060	16	7	16	6	32	66	2
35 x 24	0.079	14	0.075	14	9	16	6	39	72	1⅞
42 x 29	0.079	14	0.075	14	11	18	7	46	88	1⅞
49 x 33	0.109	12	0.105	12	12	21	9	53	105	1¾
57 x 38	0.109	12	0.105	12	16	26	12	62	122	1⅞
60 x 46	0.109	12	0.105	12	17	36	12	70	142	1⅞
64 x 43	0.109	12	0.105	12	17	30	12	69	131	1⅞
66 x 51	0.109	12	0.105	12	17	36	12	77	156	1¾
71 x 47	0.109	12	0.105	12	17	36	12	77	143	1⅞
73 x 55	0.109	12	0.105	12	17	36	12	77	168	1½
77 x 52	0.109	12	0.105	12	17	36	12	77	157	1⅜
81 x 59	0.109	12	0.105	12	17	44	12	77	179	1⅝
83 x 57	0.109	12	0.105	12	17	44	12	77	162	1½
87 x 63	0.109	12	0.105	12	17	44	12	77	186	1½
95 x 67	0.109	12	0.105	12	17	44	12	87	210	1½
103 x 71	0.109	12	0.105	12	17	44	12	87	222	1⅓
112 x 75	0.109	12	0.105	12	17	44	12	87	226	1¼

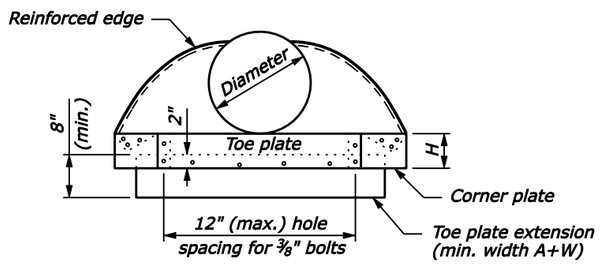


PLAN SECTION A-A

ROUND OR PIPE ARCH CULVERT

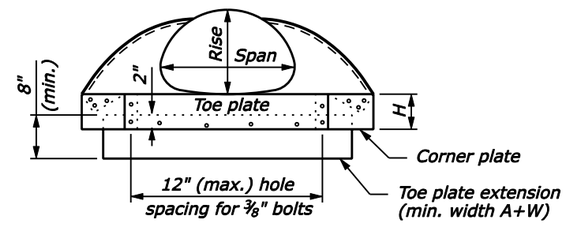
NOTE:

1. Variations in design and dimensions are permitted to allow for manufacturer's standards.
2. Fabricate the diameter of the end section of Design B to match the inside diameter of the concrete pipe culvert.
3. Design C may be used in lieu of design A for all metal pipe culvert sizes. Coupling bands may be any acceptable type for the pipe culvert specified.
4. Fabricate multiple piece bodies with lap seams tightly joined by ⅜" rivets or bolts. Fabricate end section center panels for 60" and larger diameter pipe and equivalent pipe arch from 0.138 inch steel or 0.135 inch aluminum.
5. On end section center panels for 66" and larger equivalent pipe arch provide 2½" x 2½" x ¼" angle reinforcement bolted or riveted under the center panel seam.
6. Supplement the reinforced edges of end sections for 60" and larger diameter pipe and 66" and larger equivalent pipe arch with 2½" x 2½" x ¼" stiffener angles attached with bolts or rivets.
7. Fabricate connector section, corner plate and toe plate extensions from the same metal thickness as the panel body. Use toe plate extension where shown on the plans.
8. Warp embankment slopes to match the slope of the flared end sections.



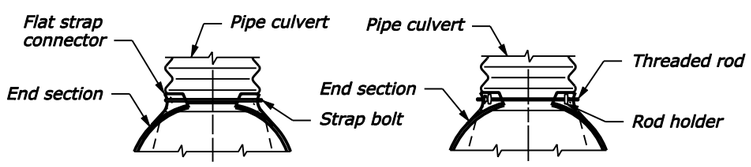
ELEVATION

ROUND PIPE CULVERT



ELEVATION

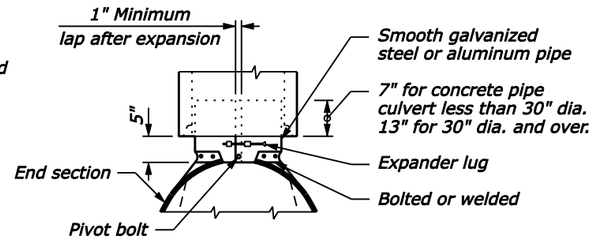
PIPE ARCH CULVERT



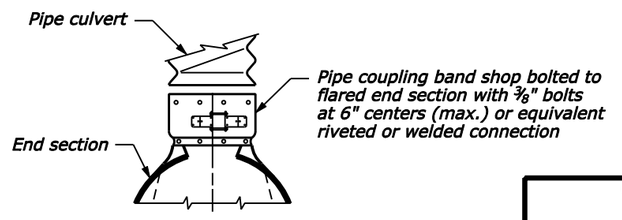
For 12" thru 24" round pipe and 17" x 13" thru 28" x 20" pipe arch

For 30" thru 60" round pipe and 35" x 24" thru 66" x 51" pipe arch

DESIGN A
CONNECTION TO ANNULAR CORRUGATED METAL PIPE



DESIGN B
CONNECTION TO CONCRETE PIPE INLET END



For all sizes of round pipe and pipe arch

DESIGN C
CONNECTION TO METAL PIPE OR OUTLET END OF CONCRETE PIPE

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
FEDERAL LANDS HIGHWAY

U.S. CUSTOMARY STANDARD

METAL END SECTIONS

STANDARD APPROVED FOR USE 12/1993
REVISED: 4/1994 6/2005
DRAFT: 10/2007

STANDARD 602-4

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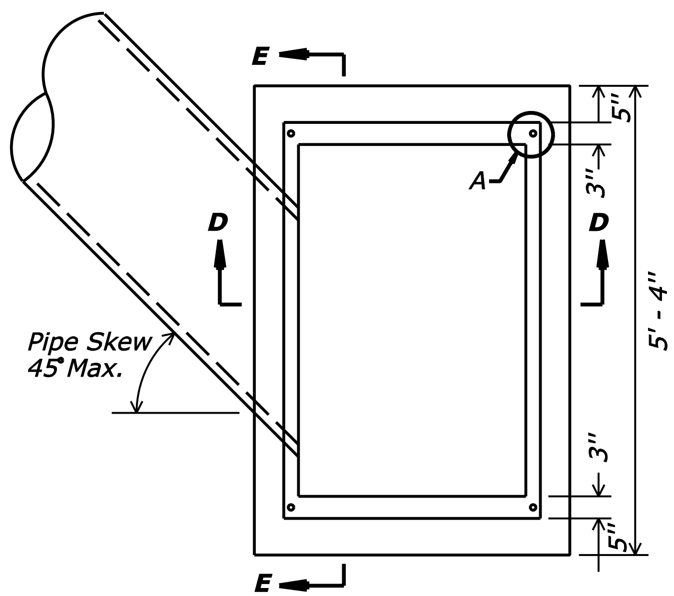
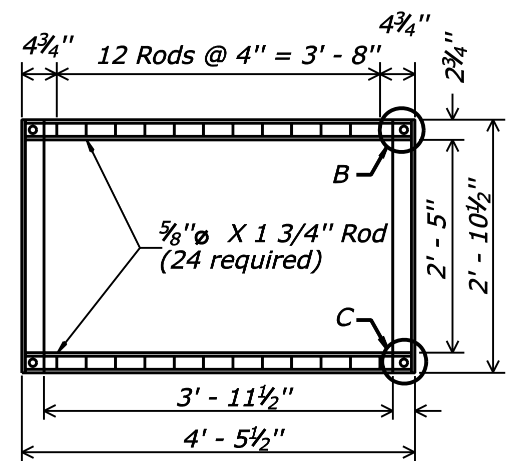
REG	STATE	PROJECT	SHEET NO.
8	GA	GA/ERFO FS 64(1)	S9

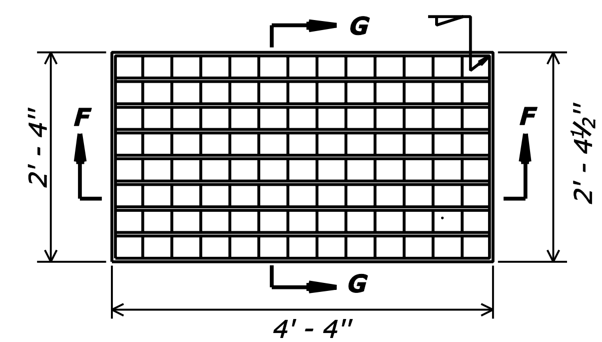


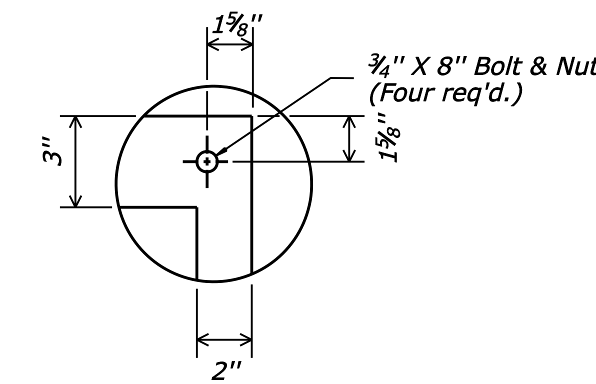


GRATE FRAME

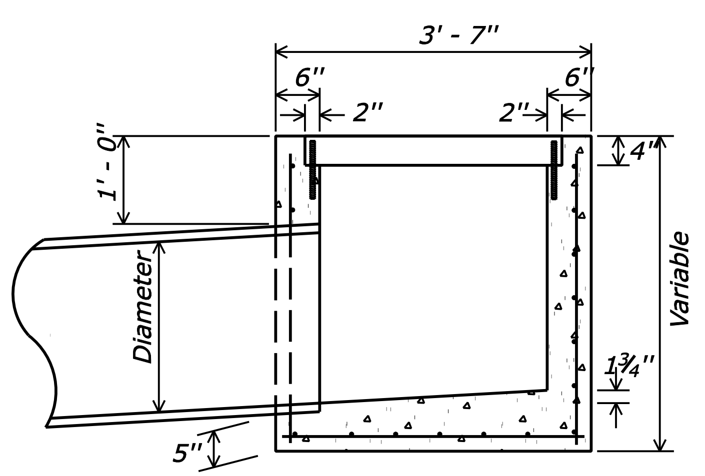
Notes:

1. All reinforcing bars shall be #5 placed 1½" minimum from face of concrete.
2. In floors, place bars on 6" centers each way. In walls, place horizontal bars on 6" centers and vertical bars on 12" centers.
3. All metal parts of frame and grate shall be hot dip galvanized after fabrication. Frame and grating shall be steel.

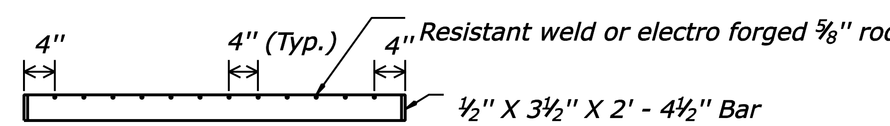




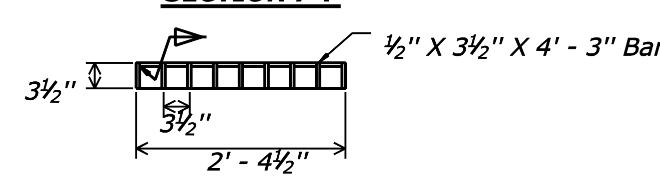
VIEW-A



SECTION D-D



SECTION F-F



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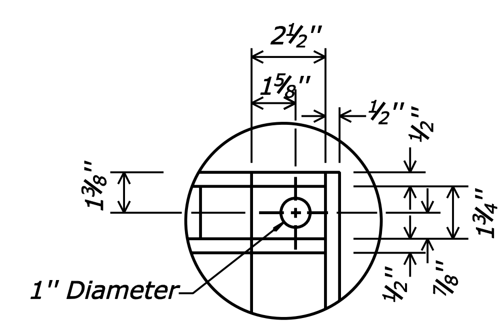
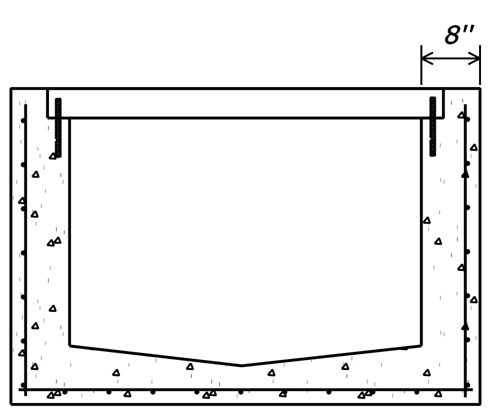


VIEW-B



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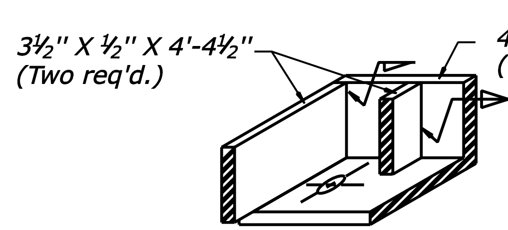
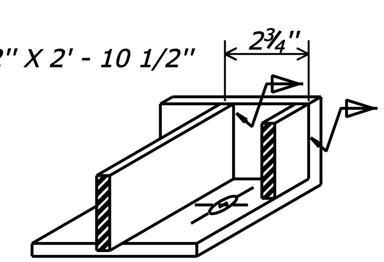


VIEW-B
(Oblique)



VIEW-C
(Oblique)

NO SCALE

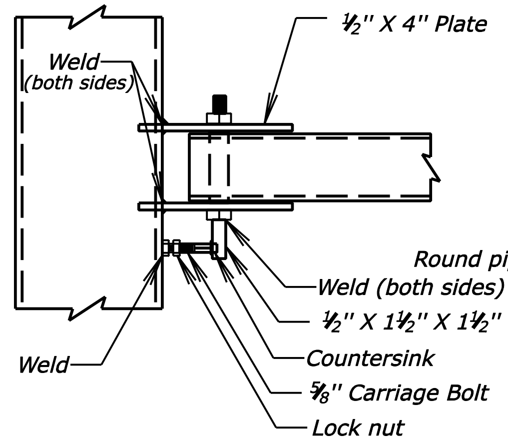
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
EASTERN FEDERAL LANDS HIGHWAY DIVISION
STERLING, VIRGINIA

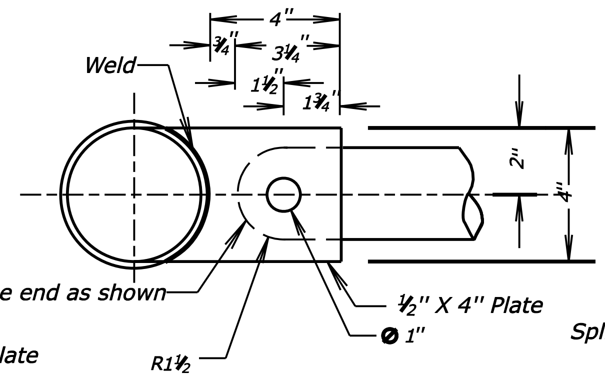
U.S. CUSTOMARY DETAIL

INLET TYPE 5B

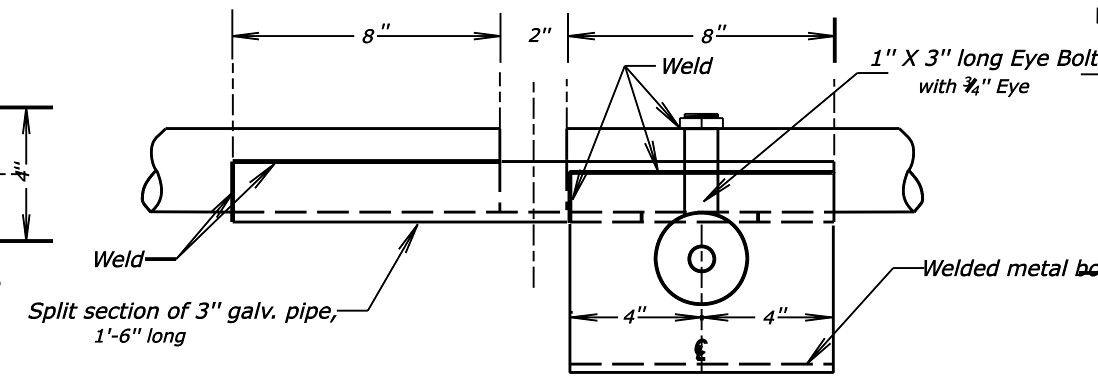
DETAIL APPROVED FOR USE	DETAIL
REVISED: 1/08	E604-04

REG	STATE	PROJECT	SHEET NO.
8	GA	GA/ERFO FS 64(1)	S10

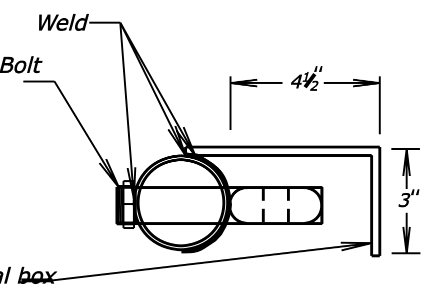




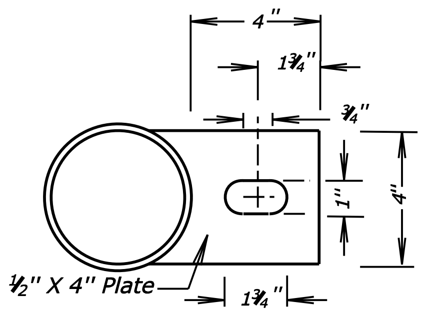
SECTION A-A (TOP HANGER)



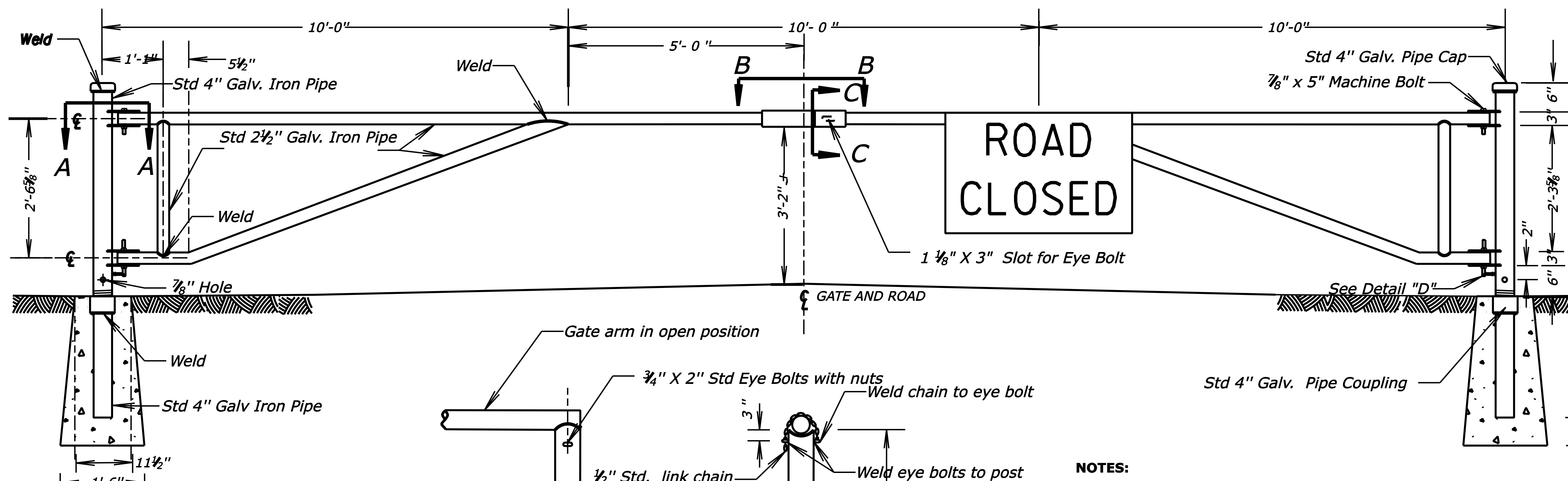
VIEW B-B

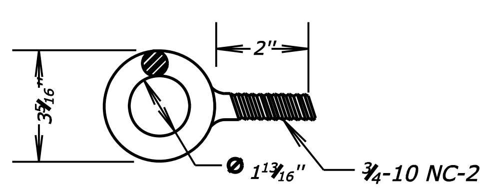


SECTION C-C

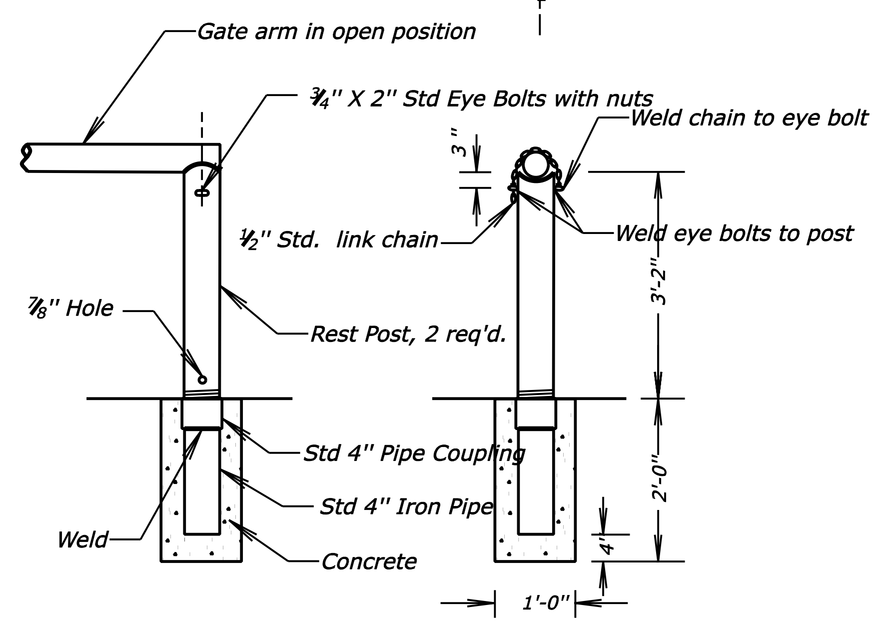


DETAIL "D" (BOTTOM HANGER)





STD. EYE BOLT DETAIL



REST POST DETAIL

NOTES:

1. Close top end of Rest Posts with 4½" dia. X ⅛" thick steel plate, form to fit and weld in place.

2. Gates and posts to be painted either alternating black and reflectorized white 4-inch stripes at 45° or use galvanized metal parts, as directed by CO.

3. Mount one "Road Closed" sign on gate as shown. Center the sign over the lane carrying the incoming traffic.

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
EASTERN FEDERAL LANDS HIGHWAY DIVISION
STERLING, VIRGINIA

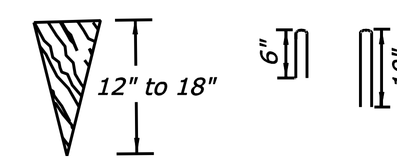
U.S. CUSTOMARY DETAIL

METAL GATE 30 FEET

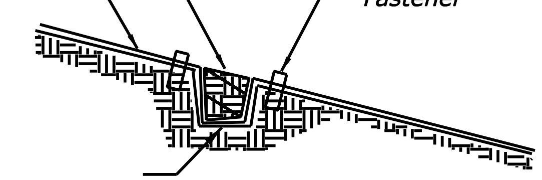
DETAIL APPROVED FOR USE	DETAIL
REVISED: 3/08	E619-06

REG	STATE	PROJECT	SHEET NO.
8	GA	GA/ERFO FS 64(1)	S11

DETAIL FOR STABILIZING SLOPES WITH MATTING



DETAIL A
Typical Ground Fasteners



SECTION A-A
Erosion Stop (Check Slot) Detail

NO SCALE

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STERLING, VIRGINIA

U.S. CUSTOMARY DETAIL

SLOPE STABILIZATION WITH MATTING

DETAIL APPROVED FOR USE

REVISED: 1/08

DETAIL
E629-01

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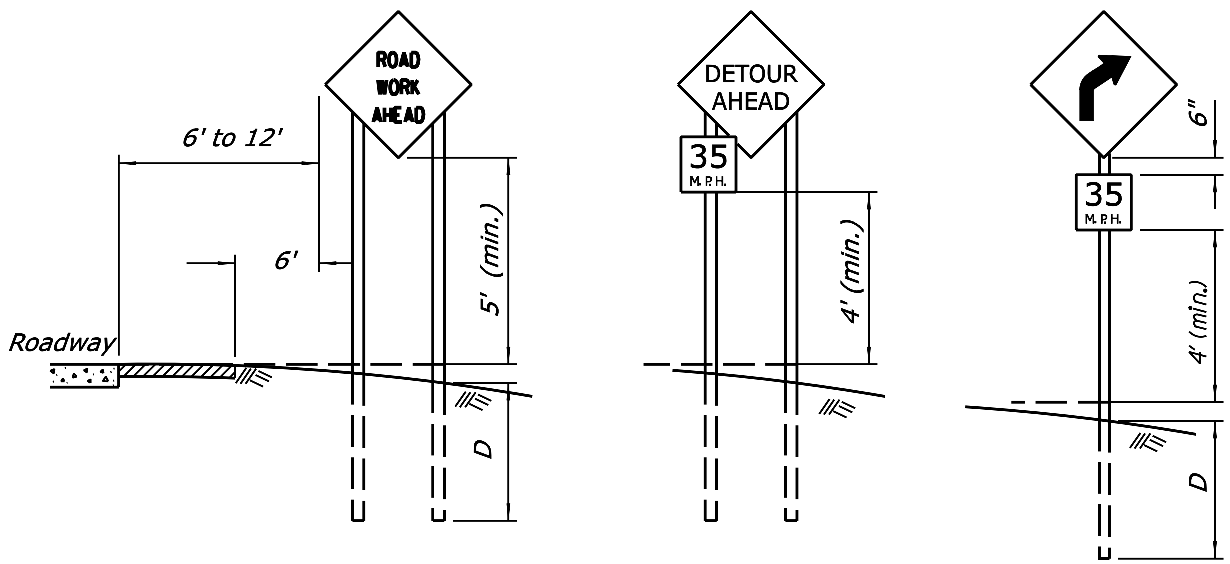
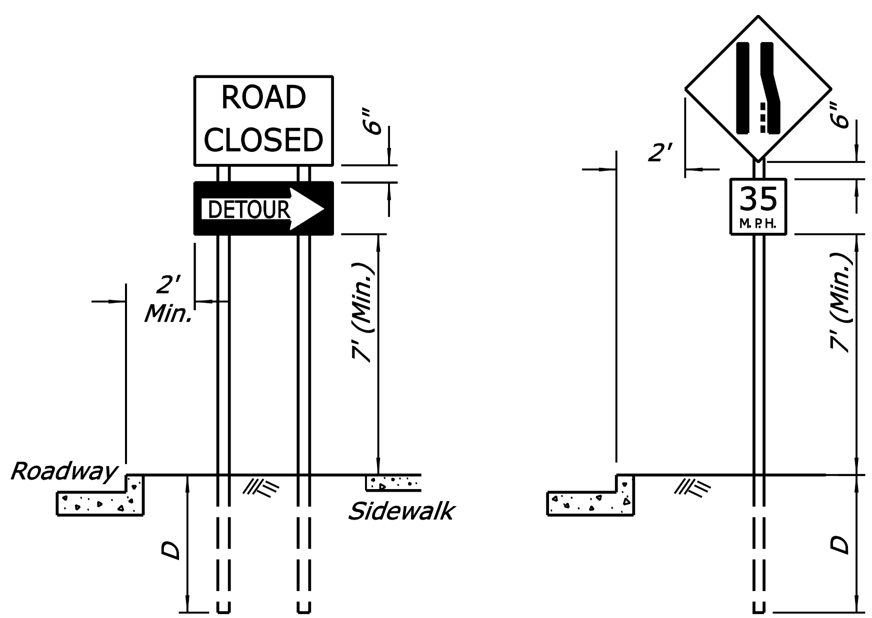
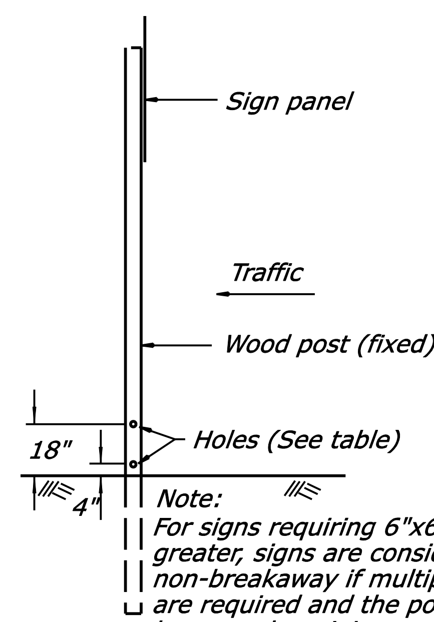
REG	STATE	PROJECT	SHEET NO.
8	GA	GA/ERFO FS 64(1)	S12



RURAL AREA



URBAN AREA

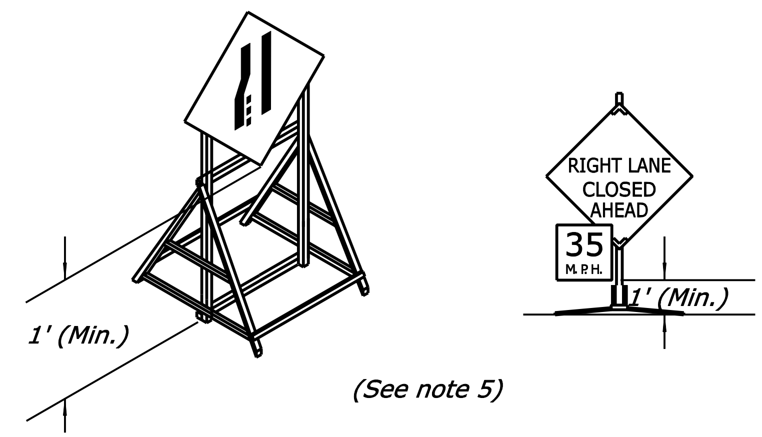


Note:
For signs requiring 6"x6" posts and greater, signs are considered to be non-breakaway if multiple posts are required and the posts cannot be spaced a minimum of 7 feet apart.

BREAKAWAY SUPPORT DETAIL
(FIXED SIGNS - 4" x 6" AND GREATER POSTS)

FIXED ROADWAY SIGNS

Post size	D	Hole Dia.	Maximum Sign Area - Sq. ft.			
			1 Post	2 Posts	3 Posts	4 Posts
4" x 4"	3'	None Req'd	10	20		
4" x 6"	4'	1.5"		35	50	70
6" x 6"	4'	2"		50	75	100
6" x 8"	5'	3"		85	125	165



(See note 5)

PORTABLE SIGNS
(See note 4)

Notes:

1. Wood posts are 4"x 4" unless otherwise indicated.
2. Mount signs that are wider than 3-feet or larger than 10 square feet on double posts.
3. All lumber dimensions are nominal.
4. The Contractor may submit alternate details for portable signs, however, sign mounts hold the sign face in a vertical plane. Portable signs may be mounted lower than fixed signs when approved by the CO. Ensure all portable sign supports meet the requirements of NCHRP-350 for crashworthiness.
5. When parking is permitted within 200 feet of the sign, mount the sign a minimum of 7 feet above the pavement surface.
6. When approved by the CO and the Utility Company, utility poles may be used for sign mounting.
7. For posts greater than 4" x 4" see the Breakaway Support Detail. If breakaway design cannot be used, due to post spacing, the sign should be placed outside the clearzone or be shielded by barrier. Do not place holes in posts of non-breakaway signs

NO SCALE

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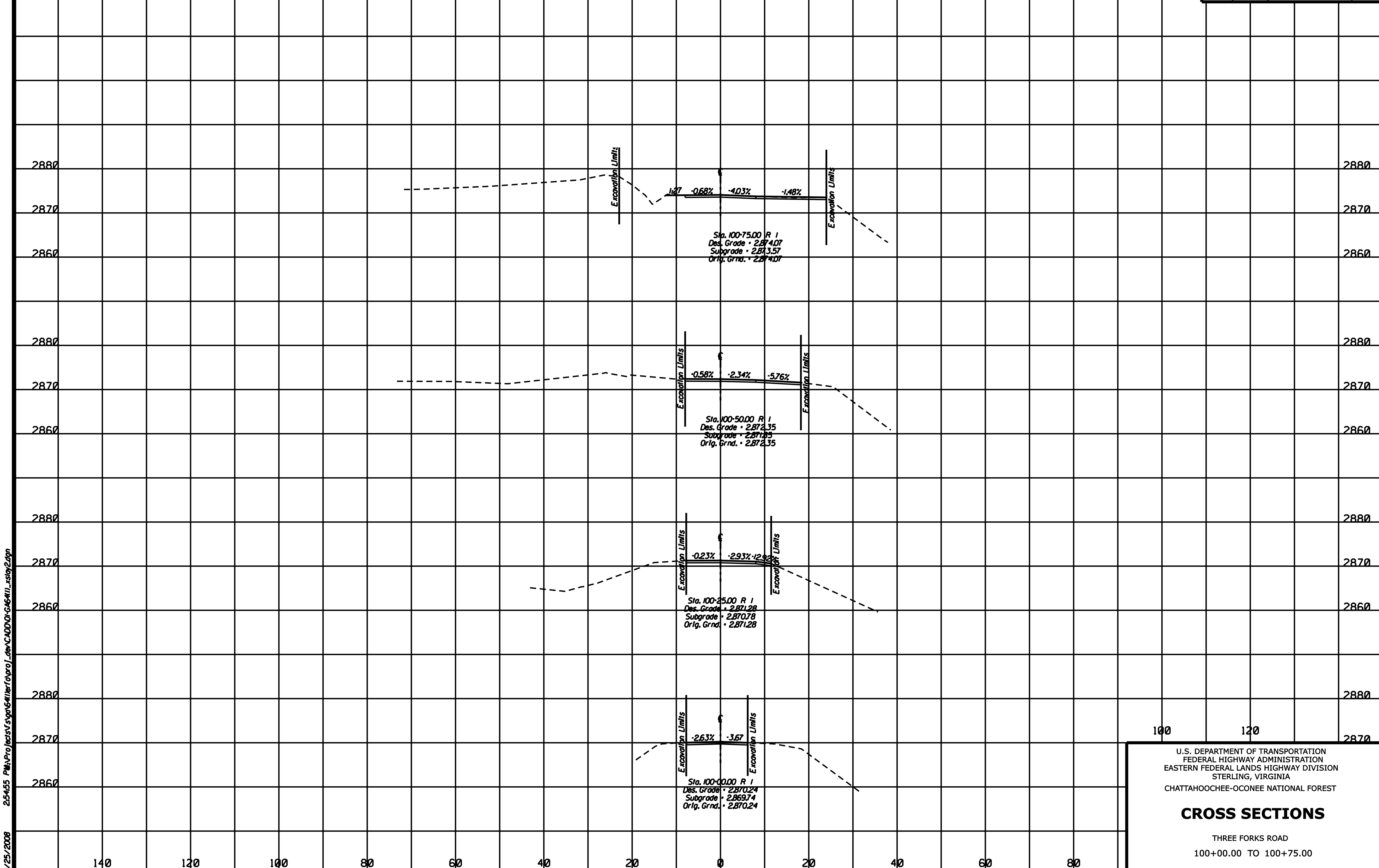
U.S. CUSTOMARY DETAIL

CONSTRUCTION TRAFFIC CONTROL SIGN MOUNTING

DETAIL APPROVED FOR USE 02/2007
REVISED: 02/07 06/07 02/08

DETAIL
E635-01

REG	STATE	PROJECT	SHEET NO.
8	GA	GA/ERFO FS 64(1)	T1



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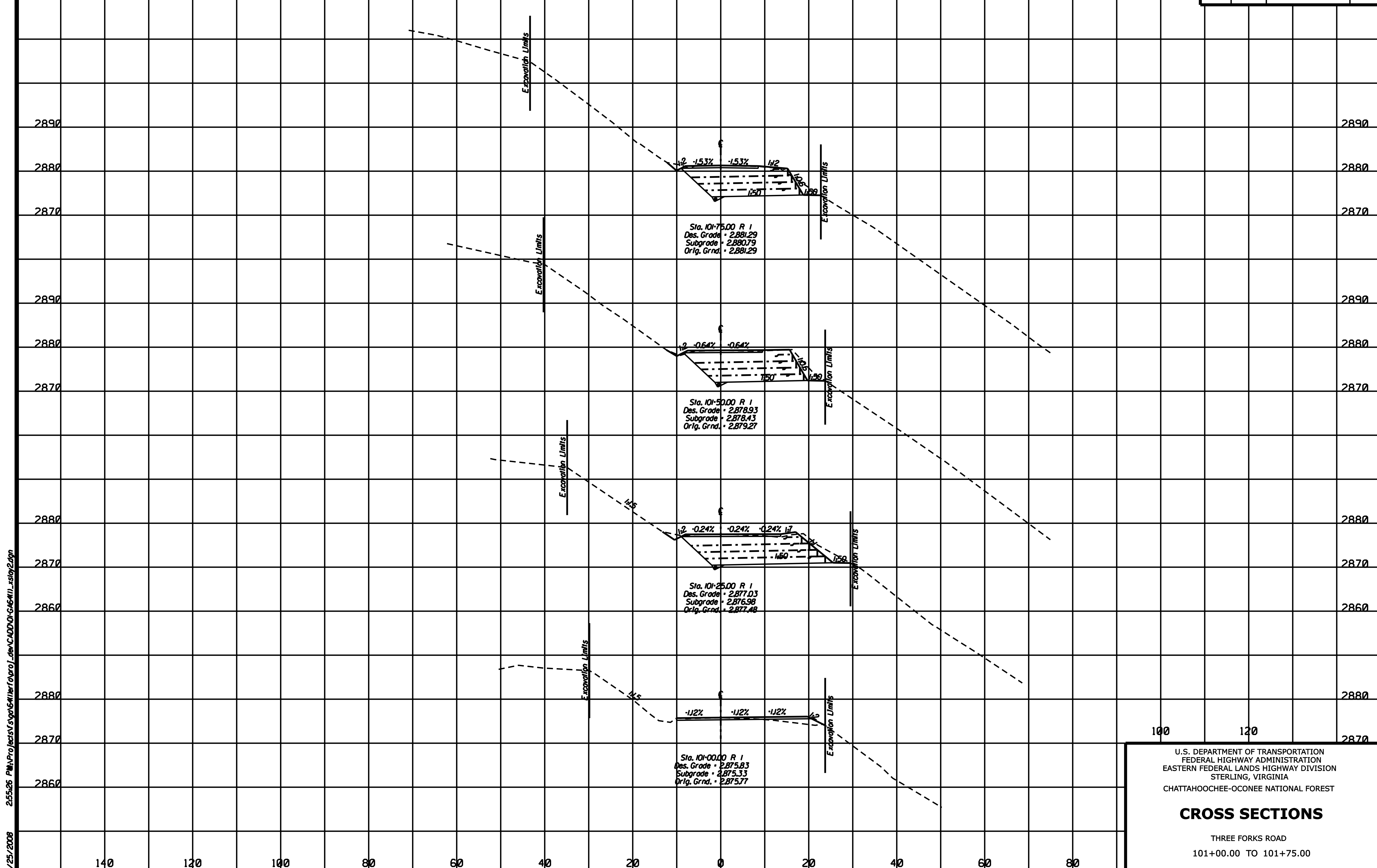
CHATTAHOOCHEE-OCONEE NATIONAL FOREST

CROSS SECTIONS

THREE FORKS ROAD

100+00.00 TO 100+75.00

REG	STATE	PROJECT	SHEET NO.
8	GA	GA/ERFO FS 64(1)	T2



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STERLING, VIRGINIA

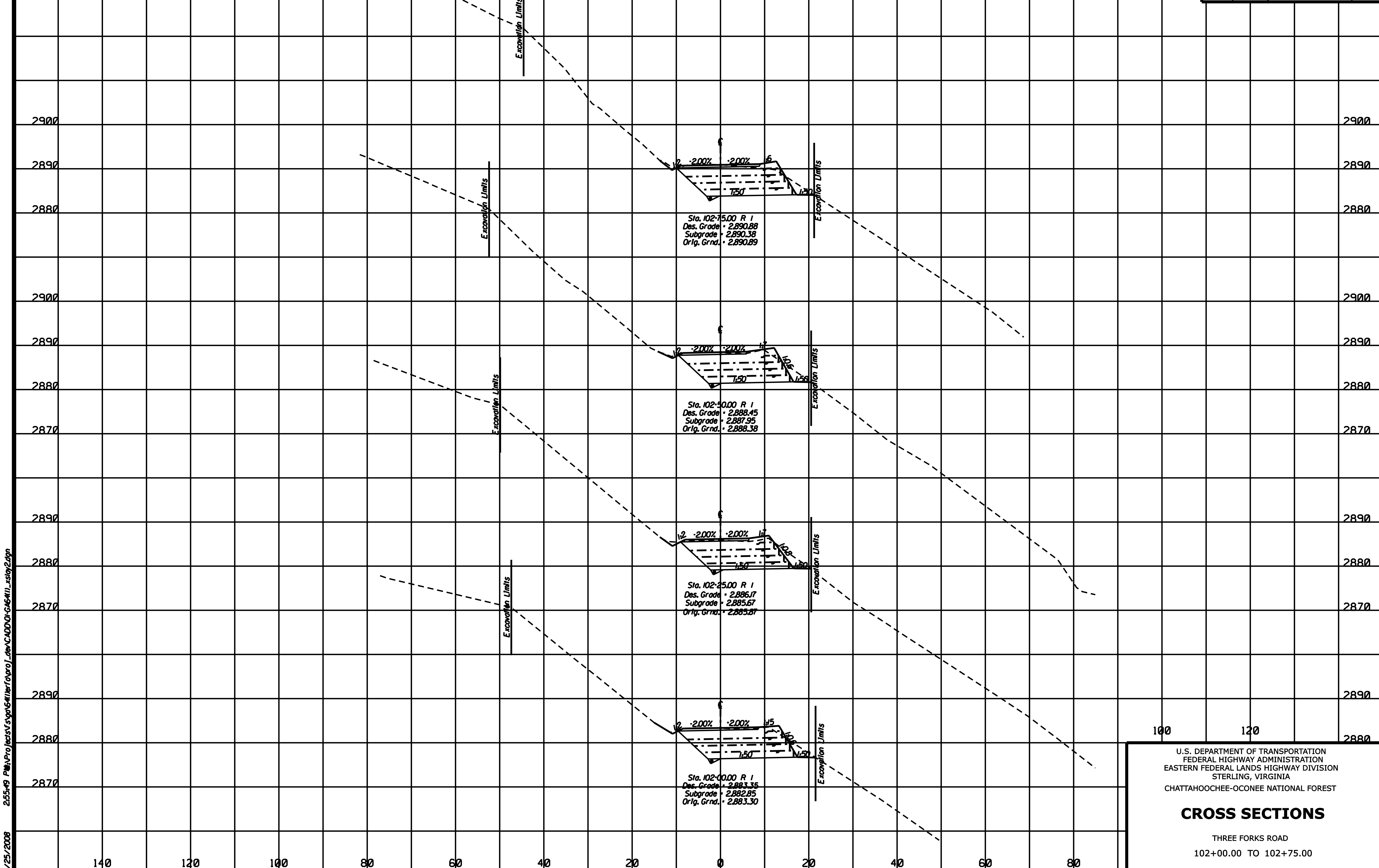
CHATTAHOOCHEE-OCONEE NATIONAL FOREST

CROSS SECTIONS

THREE FORKS ROAD

101+00.00 TO 101+75.00

REG	STATE	PROJECT	SHEET NO.
8	GA	GA/ERFO FS 64(1)	T3



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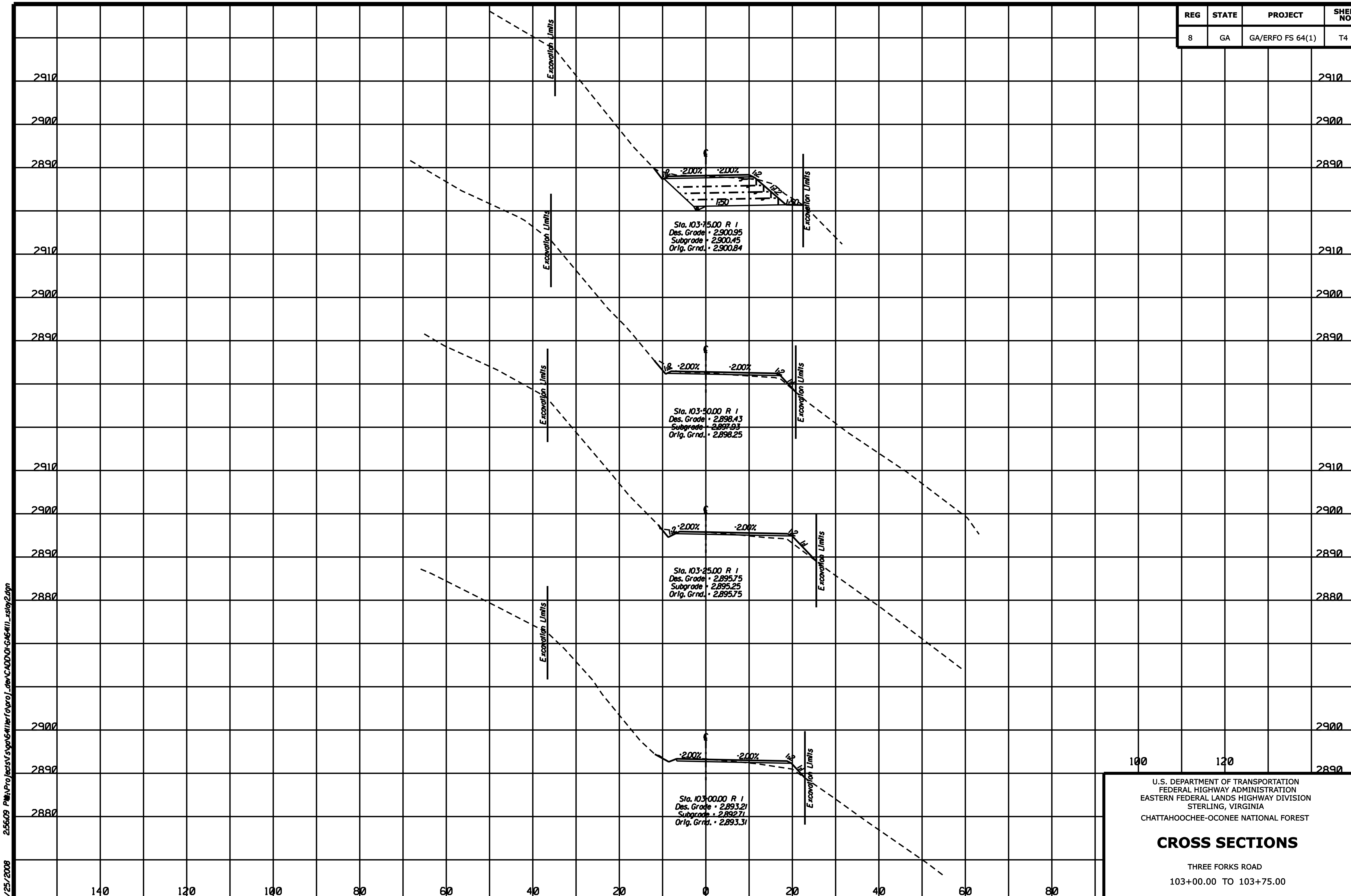
CHATTAHOOCHEE-OCONEE NATIONAL FOREST

CROSS SECTIONS

THREE FORKS ROAD

102+00.00 TO 102+75.00

REG	STATE	PROJECT	SHEET NO.
8	GA	GA/ERFO FS 64(1)	T4



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STERLING, VIRGINIA

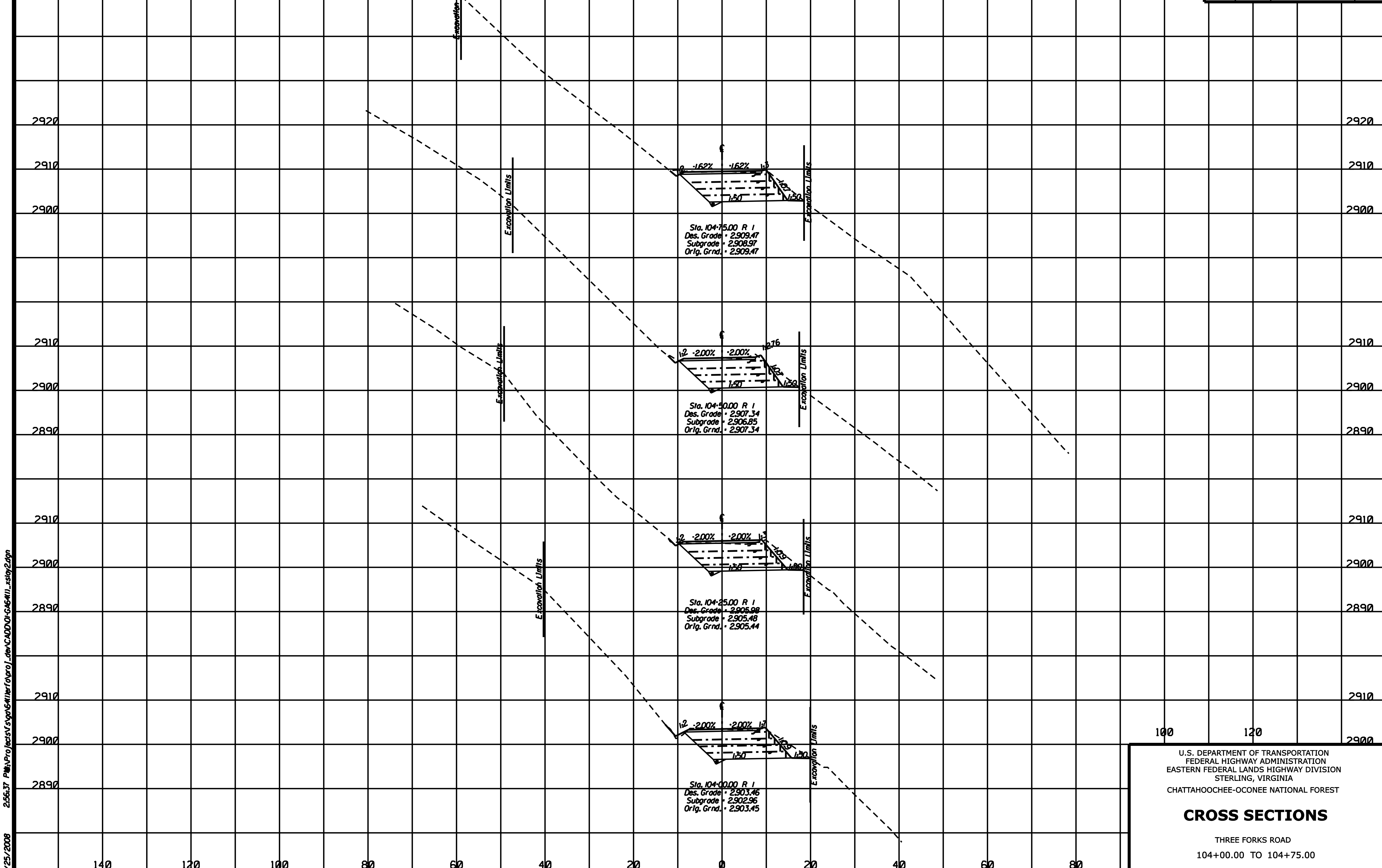
CHATTAHOOCHEE-OCONEE NATIONAL FOREST

CROSS SECTIONS

THREE FORKS ROAD

103+00.00 TO 103+75.00

REG	STATE	PROJECT	SHEET NO.
8	GA	GA/ERFO FS 64(1)	T5



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STERLING, VIRGINIA

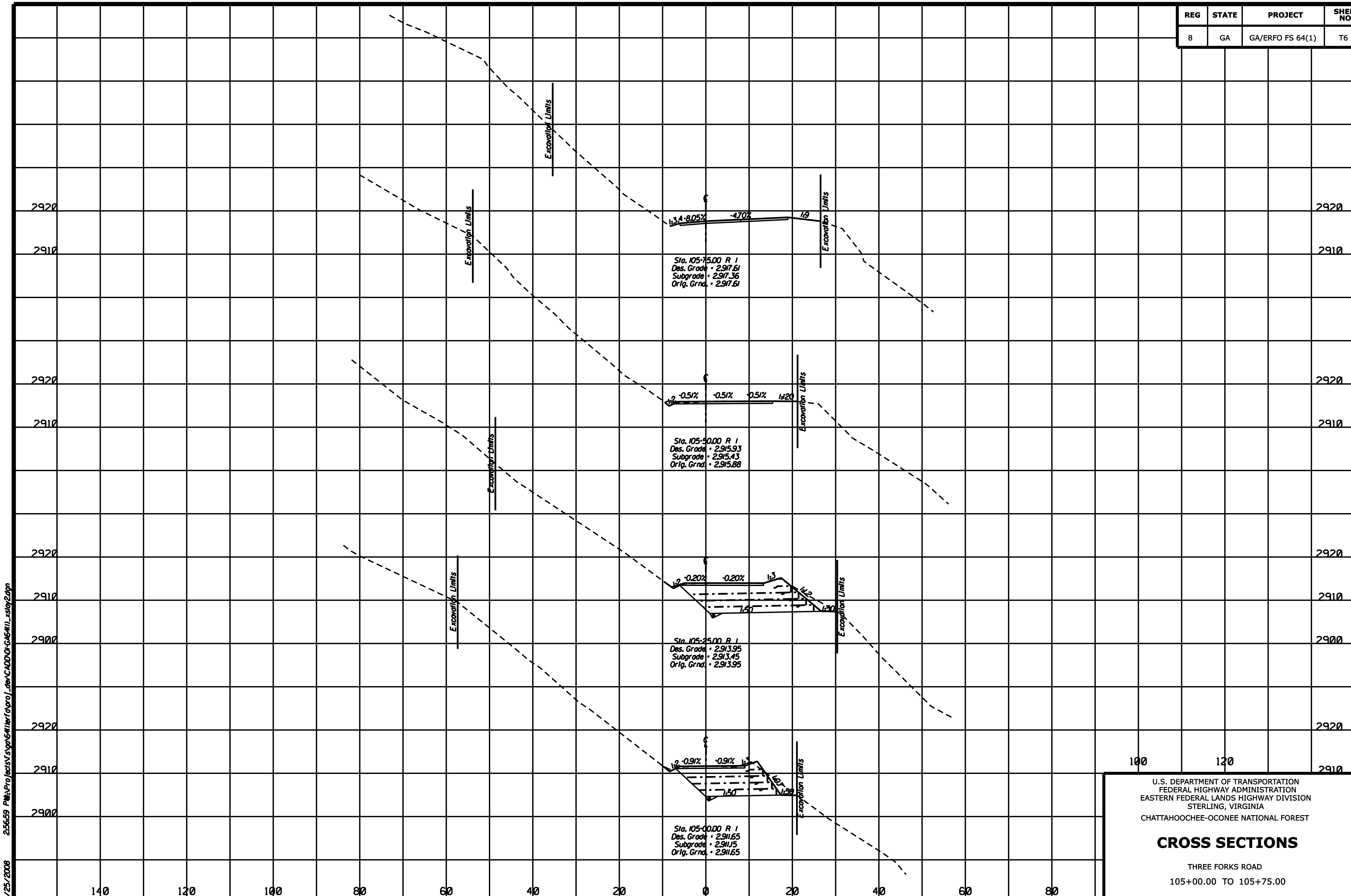
CHATTAHOOCHEE-OCONEE NATIONAL FOREST

CROSS SECTIONS

THREE FORKS ROAD

104+00.00 TO 104+75.00

REG	STATE	PROJECT	SHEET NO.
8	GA	GA/ERFO FS 64(1)	T6



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STERLING, VIRGINIA

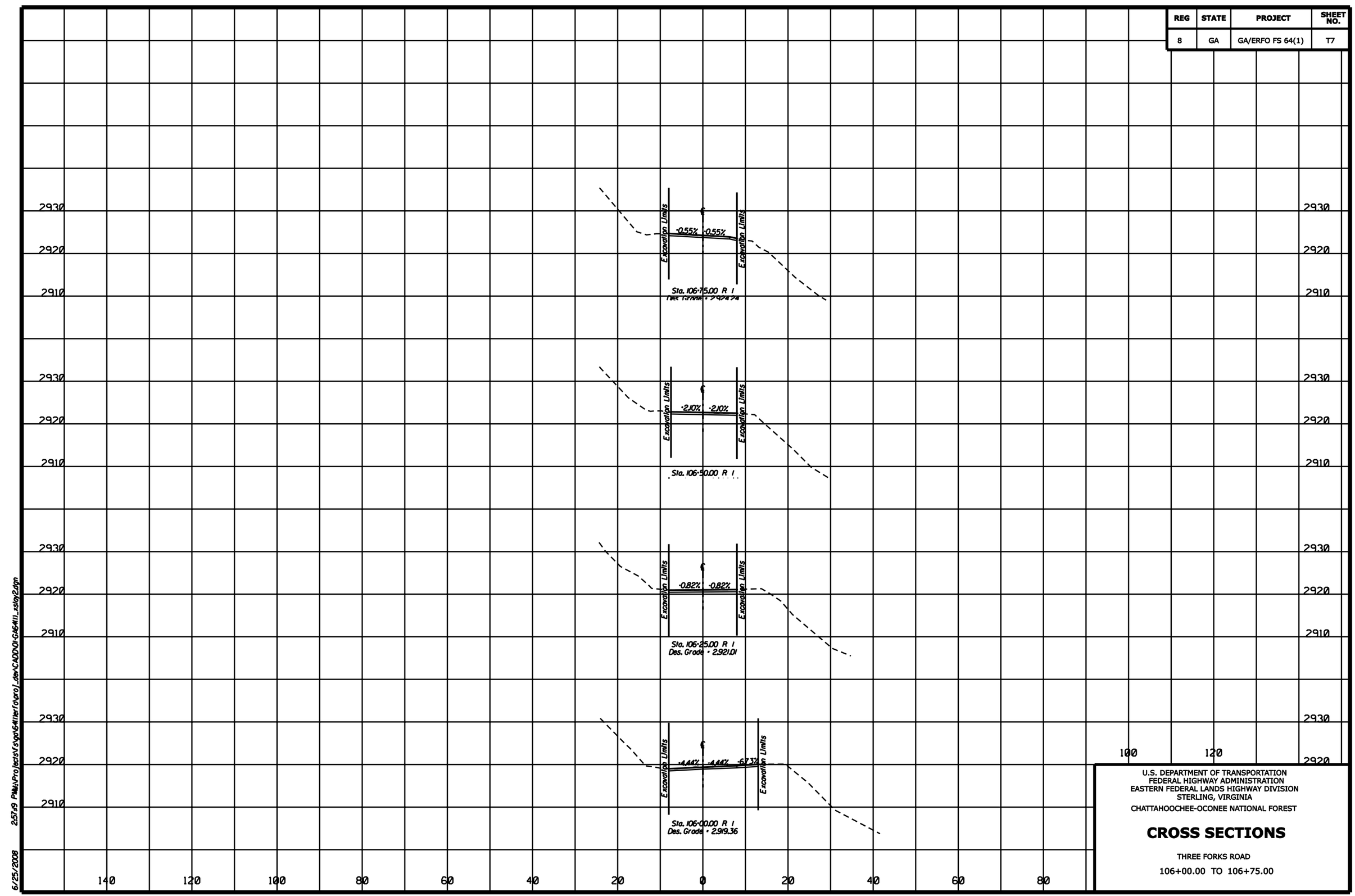
CHATTAHOOCHEE-OCONEE NATIONAL FOREST

CROSS SECTIONS

THREE FORKS ROAD

105+00.00 TO 105+75.00

REG	STATE	PROJECT	SHEET NO.
8	GA	GA/ERFO FS 64(1)	T7



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CHATTAHOOCHEE-OCONEE NATIONAL FOREST

CROSS SECTIONS

THREE FORKS ROAD

106+00.00 TO 106+75.00

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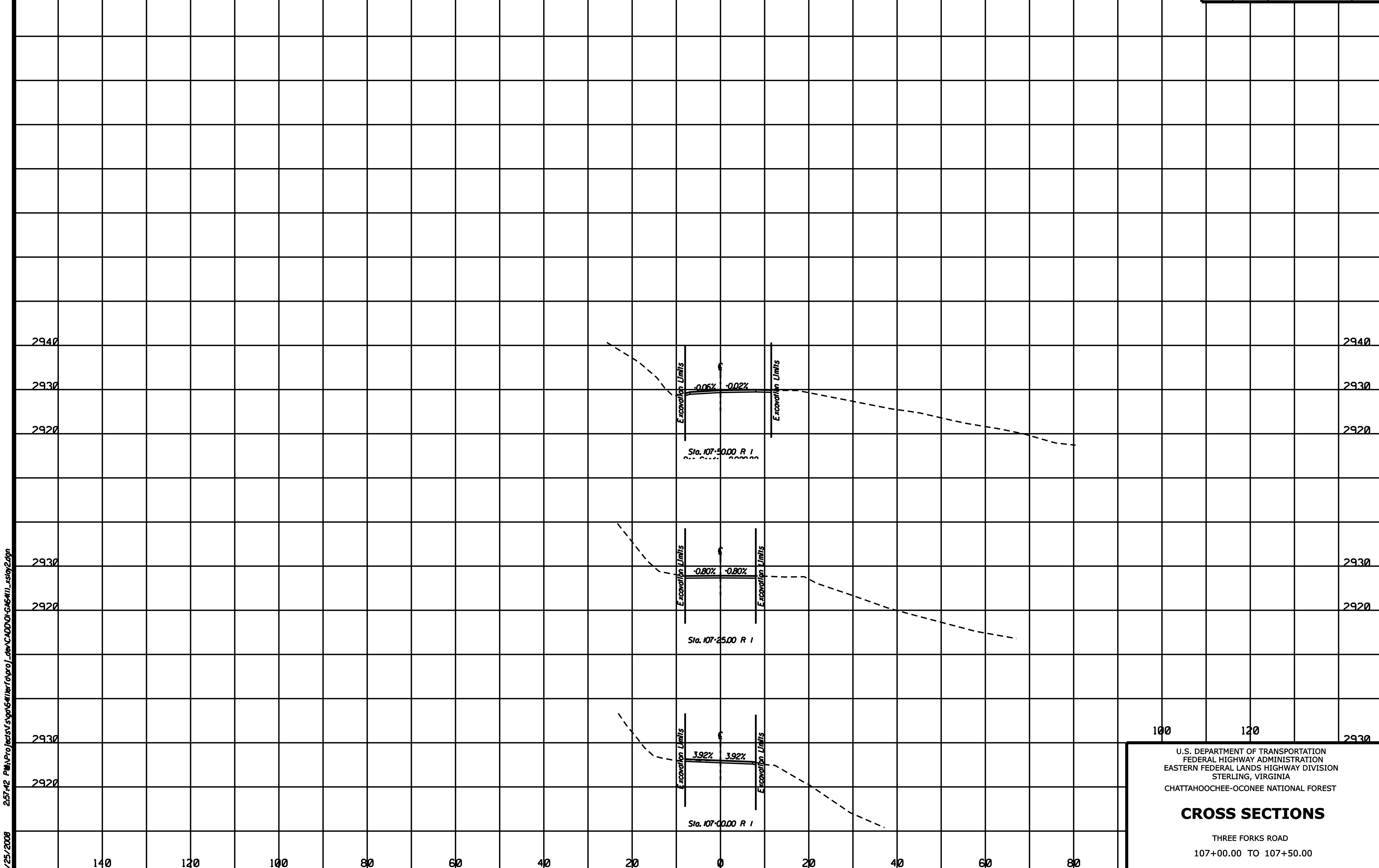
REG	STATE	PROJECT	SHEET NO.
8	GA	GA/ERFO FS 64(1)	T8



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STERLING, VIRGINIA

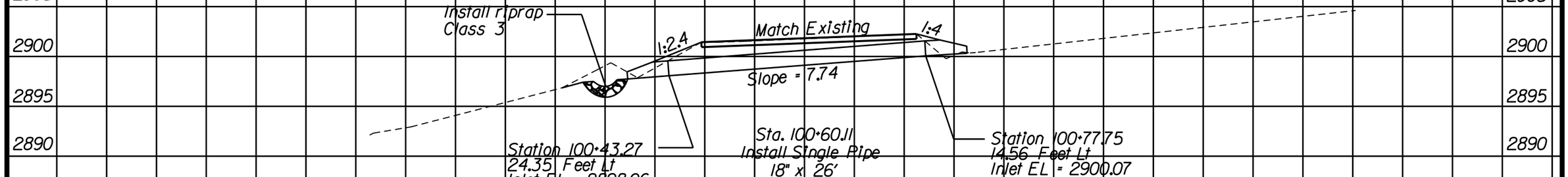
CHATTAHOOCHEE-OCONEE NATIONAL FOREST

CROSS SECTIONS

THREE FORKS ROAD

107+00.00 TO 107+50.00

REG	STATE	PROJECT	SHEET NO.
8	GA	GA/ERFO FS 64(1)	T9



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CHATTAHOOCHEE-ONOCEE NATIONAL FOREST

DRAINAGE CROSS SECTIONS

THREE FORKS ROAD

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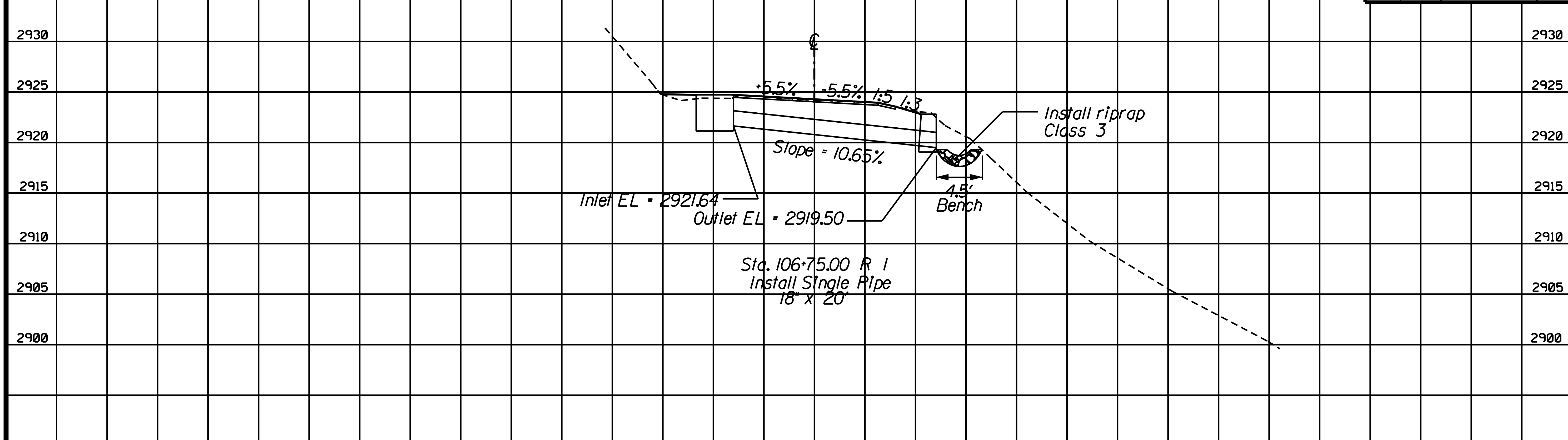
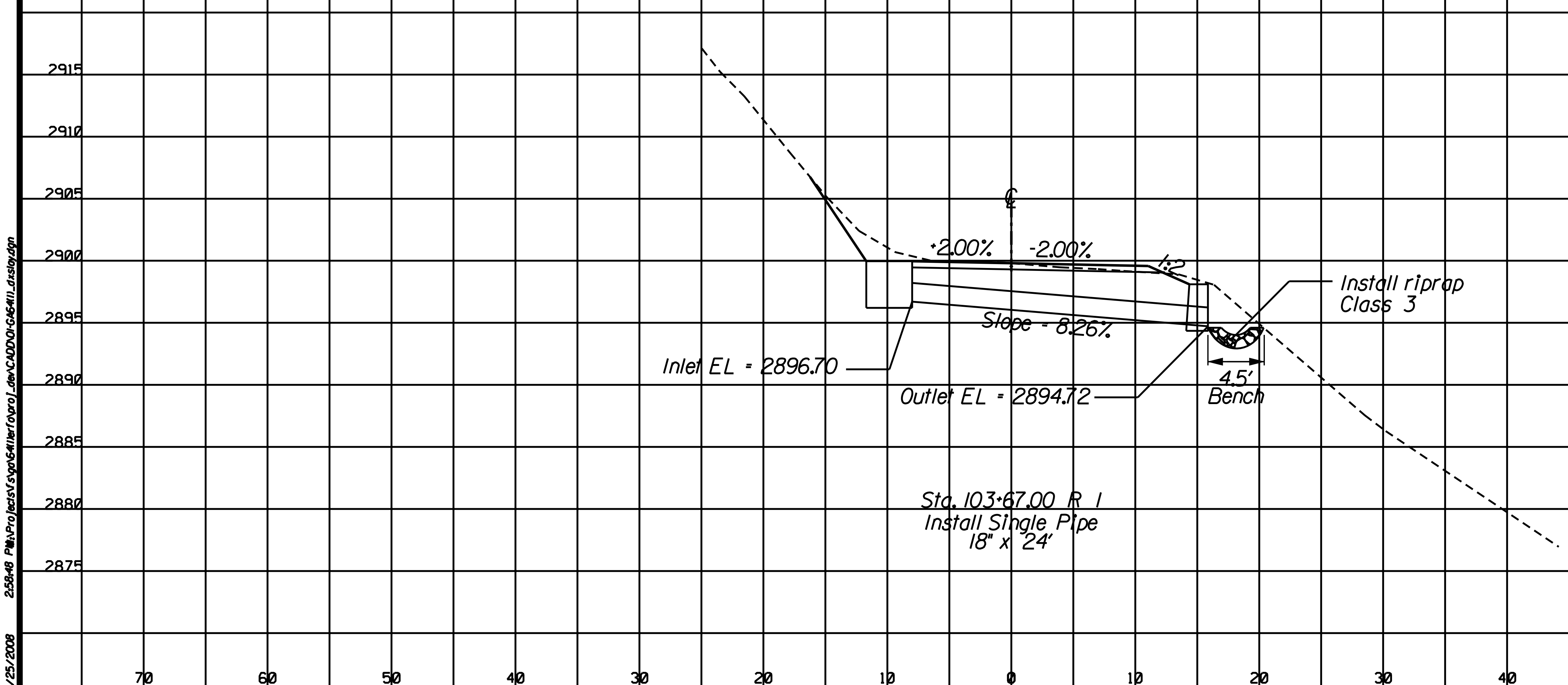
REG	STATE	PROJECT	SHEET NO.
8	GA	GA/ERFO FS 64(1)	T10





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DRAINAGE CROSS SECTIONS

THREE FORKS ROAD